



**RF/RMRS-97-012**

**PROPOSED ACTION MEMORANDUM  
FOR THE DECOMMISSIONING  
OF BUILDING 123**

**August 1997**

**ADMIN RECORD**  
B123-A-00028

**PROPOSED ACTION MEMORANDUM**  
**FOR THE DECOMMISSIONING OF**  
**BUILDING 123**  
**REVISION 0**  
**AUGUST 1997**

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## ACRONYMS

ACM	Asbestos-containing material
ALARA	As low as reasonably achievable
AQM	Air Quality Management
ASHERA	Asbestos Hazard Emergency Response Act
ARAR	Applicable or Relevant and Appropriate Requirements
BRCS	Building Radiation Cleanup Standard
CAQCC	Colorado Air Quality Control Commission
CCR	Colorado Code of Regulations
CDPHE	Colorado Department of Public Health and the Environment
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
COC	contaminants of concern
CWTF	Consolidated Water Treatment Facility
D&D	Decommissioning and Demolition
DDCP	Dibutyl-n-n-diethyl carbamoyl phosphonate
DoD	Department of Defense
DOE	Department of Energy
ED	External Dosimetry
FIP	Facility Implementation Plan
GSA	General Services Administration
HPGe	High-purity germanium
HPI	Health Physics Instrumentation
HRR	Historical Release Report
HSP	Health and Safety Plan
HUD	US Department of Housing and Urban Development
HVAC	Heating, ventilating and air conditioning
IH	Industrial Hygiene
IHSS	Individual Hazardous Substance Site
IRA	Interim Remedial Action
IWCP	Industrial Work Control Plan
LLM	Low-Level Mixed Waste
LLW	Low-Level Waste
MARSSIM	Multi-Agency Radiological Site Survey and Site Investigation Manual
MCL	Maximum Contaminant Level
mrem	millirem
NCP	National Contingency Plan
NEPA	National Environmental Protection Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NPDES	National Pollution Discharge Elimination System
NRC	Nuclear Regulatory Commission
NTS	Nevada Test Site
OPWL	Original Process Waste Line
OSHA	Occupational Safety and Health Administration

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PAM	Proposed Action Memorandum
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
PU&D	Property Utilization and Disposal
QA/QC	Quality Assurance/Quality Control
RAAMP	Radioactive Ambient Air Monitoring Program
RCA	Radiation Control Area
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RLCR	Reconnaissance-Level Characterization Report
RLCS	Reconnaissance-Level Characterization Survey
RMMA	Radioactive Material Management Area
RMRS	Rocky Mountain Remediation Services
RWP	Radiation Work Permit
SAA	Satellite Accumulation Area
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments Reauthorization Act
SHPO	State Historic Preservation Office
TAL	Target Analyte List
TBC	To-Be-Considered
TCLP	Toxicity Characteristic Leaching Procedure
TLD	ThermoLuminescent Dosimeter
TSCA	Toxic Substance Control Act
TSDF	Treatment, Storage, and Disposal Facility
TU	Temporary Unit
UBC	Underground Building Contamination
VOC	Volatile Organic Compound
WSRIC	Waste Stream Residue Identification Characterization
WMP	Waste Management Plan

## **1.0 PURPOSE**

This Proposed Action Memorandum (PAM) outlines the approach and the applicable requirements that will be utilized in the decommissioning of Buildings 123, 114, 113, and 123S as part of the site cleanup of the Rocky Flats Environmental Technology Site (RFETS). The effort will be managed as a non-time critical Interim Remedial Action (IRA) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), with respect to the RFETS Life Cycle Baseline (DOE 1996a).

Removal of the subject buildings will be conducted in accordance with the Rocky Flats Cleanup Agreement (RFCA, DOE 1996b) and the applicable or relevant and appropriate requirements (ARARs) of Federal, State, and local regulations. The regulatory requirements are implemented through RFETS policies and procedures. The action will be conducted in a manner that is protective of site workers, the public, and the environment.

## **2.0 PROJECT DESCRIPTION**

The project will facilitate the decommissioning efforts at Buildings 123, 113, 114, and 123S, remediation of Individual Hazardous Substance Sites (IHSSs) 121 and 148, partial closure of Resource Conservation and Recovery Act (RCRA) Unit 40, and decontamination of radiologically-contaminated facility systems. The Building 123 slab and foundation will be removed as required to remediate any subsurface contamination as dictated by soil sampling results. The PAM will thoroughly examine building removal activities, including relocation of the building tenants, removal of furniture, equipment, and excess chemicals, characterization of the building hazards and potential contamination, and removal of all asbestos-containing material (ACM).

### **2.1 BUILDING 123 PHYSICAL DESCRIPTION**

The main structure in the Building 123 Cluster is Building 123, a bioassay laboratory and a dosimetry counting and distribution facility. Associated structures include Building 113, a medical records storage facility (which originally served as a guard shack), Building 114, a small outdoor shelter, and Building 123S, a metal storage unit for containerized waste. Building locations are indicated in Figure 2-1. This section describes the physical arrangement of principal buildings in the Building 123 Area, including architectural and structural features, significant equipment, environmental control systems and safety aspects of each building.

Building 123 is located on Central Avenue between Third and Fourth Streets (Figure 2-1). Figure 2-2 indicates the location of the building in relation to other RFETS facilities. The original building has been in use since construction in 1953, with additions completed in 1968, 1972, and 1974. The general areas of the building and respective approximate construction dates are

East and North Wing (Rooms 100-135) - 1952  
Addition to East Wing (Rooms 139-151) - 1968



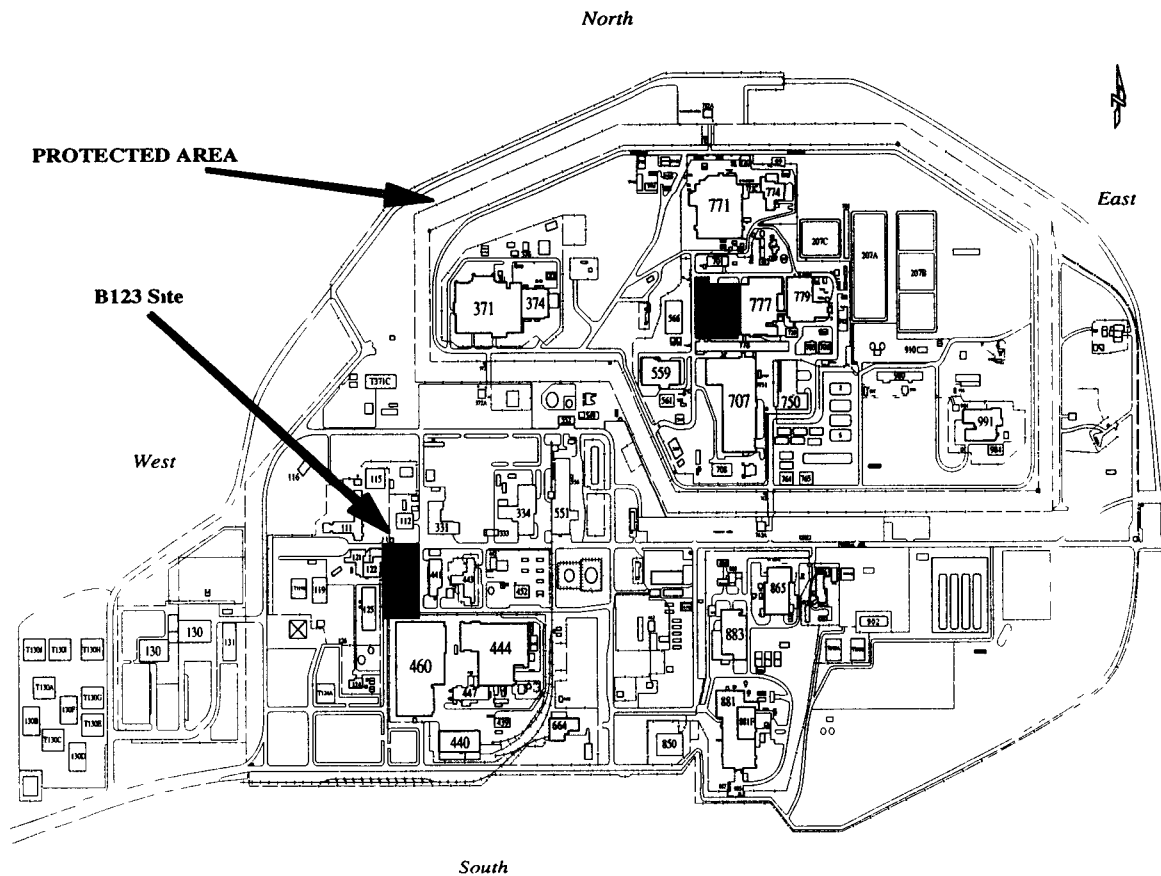


Figure 2-1 Building 123 Site Plan

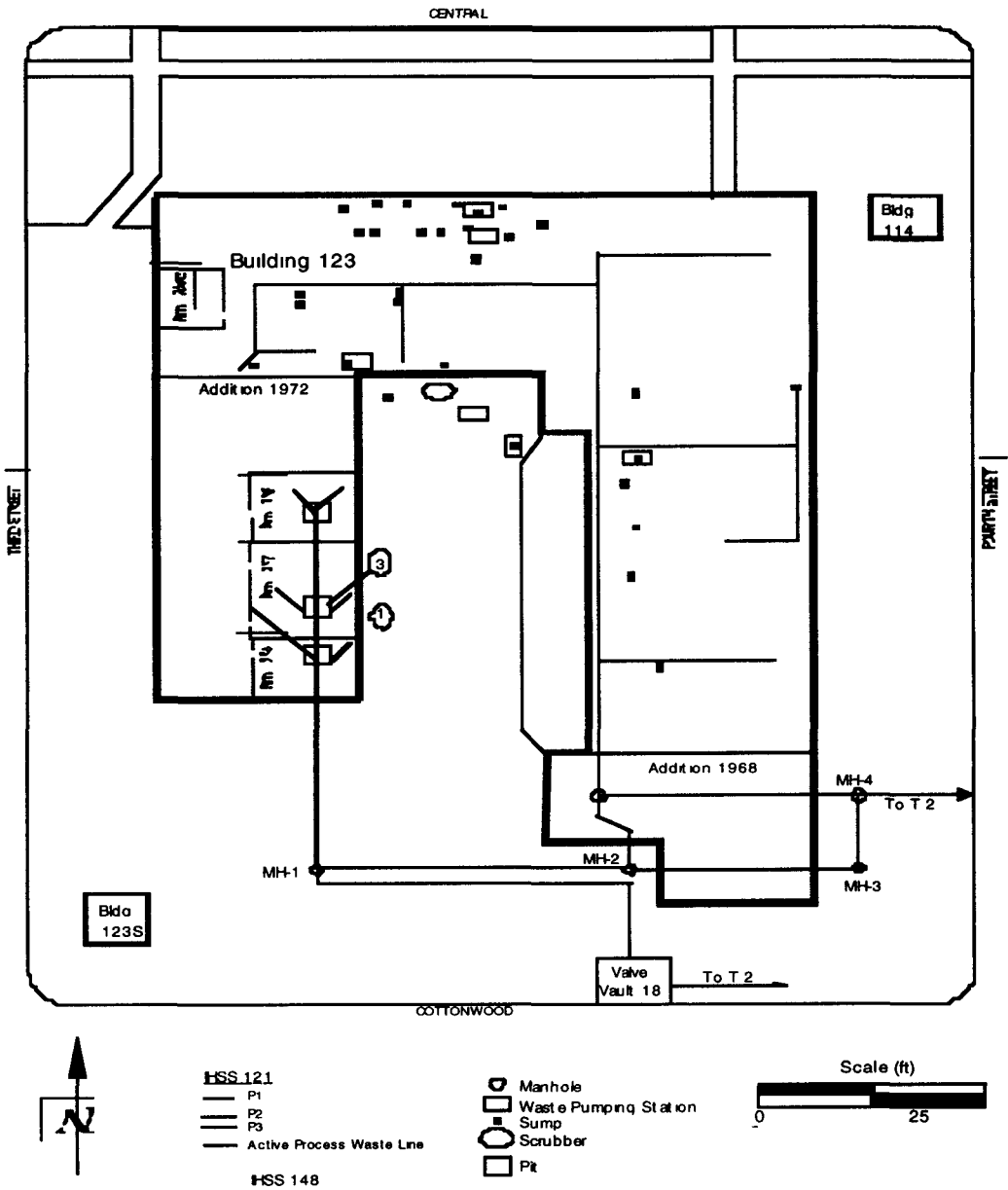


Figure 2-2 B123 Site Location

West Wing (Rooms 154-163) - 1972  
Addition to East Wing (Room 165) - 1974

Currently, the 75-room, single-level facility covers approximately 19,000 square feet and is constructed on grade with approximately fourteen- (14-) foot ceilings. Construction material is mostly concrete with an asphalt roof. Modifications have been made to the building interior after the original construction of each area. Areas have been remodeled including installation and removal and partition walls, laboratory fixtures and other items. Sections of piping have been installed, removed and modified during the life of the facility. In addition, piping insulation in some areas has been replaced. Therefore, the possibility exists for a specific system, room or area to contain both ACM and non-ACM.

Heating, ventilating, and air conditioning (HVAC), electricity, gas and compressed air, steam, water, process waste, sewer, fuel oil, and fire protection utility systems serve the building.

## **2.2 BUILDING 123 CLUSTER GENERAL OPERATING HISTORY**

### **2.2.1 Building 123**

Building 123 was one of the first ten (10) buildings constructed at Rocky Flats. Analytical laboratory, dosimetry and instrument calibration activities have been conducted in Building 123 since construction in 1953. Building 123 also provides office space for radiation health specialists, storage for all radiological health records, a laboratory for calibration and repair of criticality alarms and other repair/calibration shops. Building 123 once housed medical research until such operations were relocated to Building 122. The Building 123 floor plan is indicated in Figure 2-3.

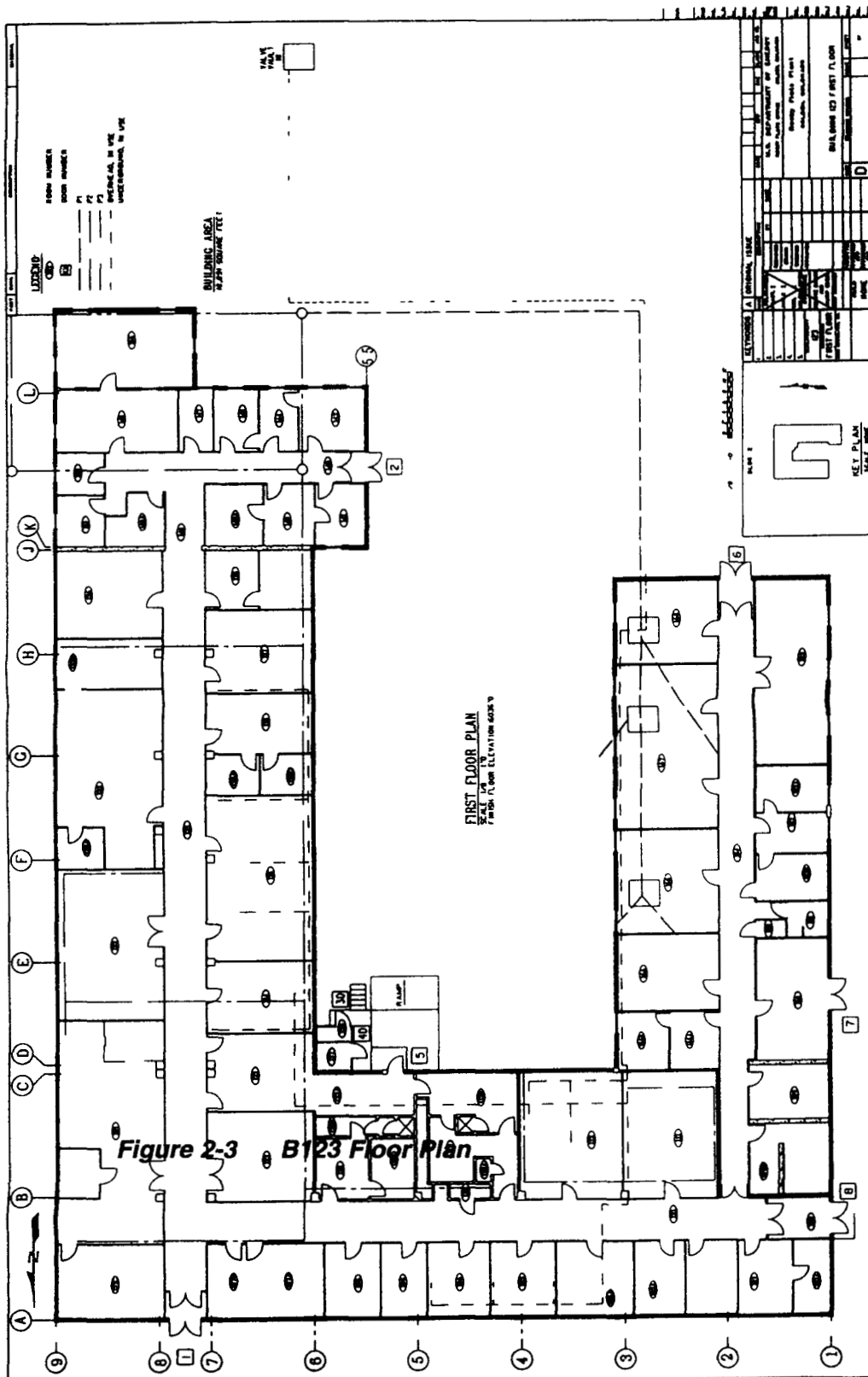
Operation of the analytical laboratory generates approximately 95 percent of the building waste and stores the majority of hazardous chemicals, with minor contributions from External Dosimetry (ED) and Health Physics Instrumentation (HPI) Sections. Historically, standard utility services have also generated small amounts of waste.

The analytical laboratory analyzes environmental (air, water, soil, and vegetation), biological (urine, fecal material, and nose swipes), health physics (room air), and industrial hygiene samples (beryllium and organic vapors in room air). The HPI Section repairs and calibrates radiation-detection instruments. The ED Section processes thermoluminescent dosimeters (TLDs) and film badges. The Radiological Records Section maintains occupational radiation exposure and dose records for radiation workers.

The analytical laboratory procedures involve the digestion of samples to purify and concentrate the radiological constituents. Sample preparation operations generated the bulk of the building waste. Combustibles, rubber gloves, and broken glass generated in the Radioactive Materials Management Areas (RMMAs) were placed in accumulation areas for eventual handling and removal as low-level waste (LLW). Various sample waste and rinse solutions were washed down the process drain for subsequent treatment in Building 774 (in Building 374 after 1983). Liquid organic wastes were containerized in special bottles and stored in satellite accumulation areas prior to transfer to the RCRA 90-day storage building and eventual shipment to Liquid Waste Operations.

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RCRA-regulated wastes were also collected in Satellite Accumulation Areas (SAAs), located in Rooms 103A, 124, 125, 127, and 156. Wastes generated in non-RMMAs and monitorable lab trash were deposited in dumpsters for disposal in the RFETS landfill.

Hazardous chemicals associated with Building 123 operations included in Section 2.4.

During the past forty-four (44) years, building operations have resulted in varying degrees of radioactive and chemical contamination within the building. For example, interviews with Building 123 occupants indicate that in the late 1960's or early 1970's, a small amount of cesium-contaminated liquid was spilled on the concrete floor in Room 109C. The floor was sealed to immobilize the contamination. Leaks or spills have also potentially contaminated the soil adjacent to and beneath the building (Section 2.3.1 through 2.3.3).

## **2.2.2 Building 113**

Building 113 is a guardhouse that has been converted to office space (Figure 2-1). The building is constructed of concrete with a flat roof, and is similar to four other guardhouses that have already been removed from RFETS. No internal processes were located in the building.

## **2.2.3 Building 114**

Building 114 is a small shelter used by RFETS employees as a waiting area for offsite transportation (Figure 2-1). The building encloses about 25 square feet and is constructed of masonry blocks with a flat roof. No utilities are associated with the building, and records indicate that the building has served no other function.

## **2.2.4 Building 123S**

Building 123S is a metal shed upon a concrete slab (Figure 2-1). The shed encloses approximately 60 square feet and was formerly managed as a RCRA 90-day storage area for organic wastes including toluene and dibutyl-n-n-diethyl carbamoyl phosphonate (DDCP) wastes produced in Building 123 laboratories. The facility was formally closed as part of the RCRA process in 1996. Closure followed 6 CCR 1007-3, 262.34(a) and 6 CCR 1007-3, 265.111 and 265.114 requirements. No waste or other material is currently stored in the shed. No utility hookups exist in the building.

## **2.3 RCRA-Designated Areas and Individual Hazardous Substance Sites (IHSSs)**

### **2.3.1 RCRA Unit 40**

The Building 123 area encompasses a portion of RCRA Unit 40, the plant-wide process waste system, a network of tanks and underground and overhead pipelines constructed to transport and temporarily store process wastes from point of origin to on-site treatment and discharge points. RCRA Unit 40 includes all overhead and underground and process waste lines in and around Building 123. No other RCRA unit exists in the Building 123 area.

### 2.3.2 IHSS 121

The Building 123 area includes CERCLA-designated IHSS 121. IHSS 121 consists of RCRA Unit 40 underground OPWLs P-1, P-2, and P-3, which constitute former Operable Unit No. 9 (OU9). The pipelines were designated in the *Final Phase I RCRA Facility Investigation/ Remedial Investigation (RFI/RI) Work Plan for Operable Unit 9* (DOE 1992a).

All process waste generated from 1952 to 1968 was transferred from Building 123 to Building 441 through line P-2, which ran below the west side of the east wing before exiting at the southeast corner of the building. In 1968 the southeast wing was extended about fifty (50) feet to the south. Prior to the building addition, two manholes (MH-2 and MH-3) were constructed and the line was extended south to MH-2, then east to MH-3, and north to MH-4, before assuming the original path to the east. The extension was designated as P-3. One manhole was abandoned and covered by the building addition. In 1972 a west wing was constructed, extending south from the northwest corner of the original building. Prior to construction of the wing, line P-1 was installed to transfer waste to manhole MH-1, then east to a junction with P-3 at MH-2 (Figure 2-1). The lines transferred the following process waste from Building 123:

- Acids: nitric acid ( $\text{HNO}_3$ ), hydrofluoric acid (HF), sulfuric acid ( $\text{H}_2\text{SO}_4$ ), hydrochloric acid (HCl), acetic acid ( $\text{C}_2\text{H}_4\text{O}_2$ ), and perchloric acid ( $\text{HClO}_4$ ),
- Bases: ammonium hydroxide ( $\text{NH}_4\text{OH}$ ) and sodium hydroxide (NaOH),
- Solvents: acetone, alcohols, cyclohexane, toluene, xylenes, trisooctomine, and ether,
- Radionuclides: various isotopes of plutonium (Pu), americium (Am), uranium (U), and curium (Cm),
- Metals: beryllium (Be) (trace amounts), and
- Others: ammonium thiocyanate, ethylene glycol, and possible trace amounts of polychlorinated biphenyls (PCBs)

In 1982 P-2 and P-3 were abandoned and plugged with cement. In 1989 the process waste transfer system was upgraded, including removal of the east-west section of P-1 between MH-2 and MH-3. The north-south section of P-1 between Building 123 and MH-1 was converted to the new process system. Three large, interconnected concrete sump pit areas were installed in Rooms 156, 157, and 158 to accommodate process waste system backup. Pipe was installed connecting MH-1 to Valve Vault 18 (Figure 2-1).

Currently, all process waste throughout Building 123 is collected in floor sumps. Each sump collects and temporarily stores liquid waste which is then pumped through overhead lines into a main floor sump in Room 158. The waste is then gravity-fed through P-1 to Valve Vault 18, then to Tank 428 at Building 441, and finally to Building 374 for treatment. Tank 428 will not be removed as part of this action as the tank is needed to service other RFETS building waste systems.

### 2.3.3 IHSS 148

IHSS 148 is part of former Operable Unit No. 13 (OU13) and is located beneath Building 123. IHSS 148 was designated in the *Final Phase I RFI/RI Work Plan for Operable Unit 13* (DOE 1992b) and has been identified as Underground Building Contamination (UBC) 123 in the RFETS Historical Release Report (HRR, DOE 1992c). IHSS 148 was established as a result of reported small spills of nitrate-bearing wastes along the east side of the building. Potential leaks in OPWL P-2 may have created contaminated soil beneath the building. A detailed characterization was conducted from September 1993 to February 1995 as part of a Phase I RCRA Facility Investigation/Remedial Investigation (RFI/RI). The characterization included high-purity germanium (HPGe) surveys, vertical soil profiles, surface soil sampling and soil gas surveys.

Thirty-four (34) analytes were detected in the surface soil survey, including twenty-six (26) inorganic compounds and eight (8) radionuclides.

The soil-gas survey was conducted on a 25-foot grid in accordance with the work plan. Sixty-four (64) soil-gas locations were sampled during the survey. Thirteen (13) samples contained volatile organic compound (VOC) levels in excess of the 1 µg/L method detection limit. Benzene, toluene, ethylbenzene, and xylene (BTEX) fuel constituents were detected in samples collected from the perimeter of Building 123 and within the west and east wings of the building. Trichlorofluoromethane (TCFM) was detected in nine samples distributed throughout the IHSS 148 area at levels up to 2.6 µg/L. Tetrachloroethene (PCE) was detected at 1.5 µg/L in a sample collected to the east of Building 123. The presence of organic extraction constituents is consistent with unconfirmed reports that such liquids used in radionuclide analyses were occasionally disposed onto the soil surface outside of Building 123 and allowed to evaporate. Analyses results indicate that subsurface infiltration precluded full evaporation.

The HRR also indicated a potential for soil contamination from sources other than Building 123 and associated OPWLs.

## 2.4 Building Hazard Summary

Pursuant to RFCA criteria, a Reconnaissance-Level Characterization Survey (RLCS) was conducted to identify any hazardous and radioactive contaminants in the Building 123 Cluster. The survey identified no significant hazards associated with Buildings 113, 114 nor 123S, and indicated that the majority of Building 123 is considered to be "unaffected" (low potential for hazardous or radiological contamination) based on operational and process history. However, the following rooms in Building 123 were previously, or currently, posted as Radiation Control Areas (RCAs) or Radioactive Material Management Areas (RMMAs) and are therefore considered to be "affected" (potential for low-level contamination) and will require a more detailed survey prior to decommissioning: Rooms 103A, 105, 112, 123, 124, 125, 126, 127, 135, 149, 155A, 156, 157, 158, and 163.

In addition to radiological surveys, sampling and analysis efforts were conducted to determine the presence of beryllium, asbestos, lead, PCBs, and other potential contaminants. Hazardous chemicals associated with Building 123 operations included nitric acid, hydrochloric acid, hydrofluoric acid, oxalic acid, ammonium hydroxide, formic acid, perchloric acid, toluene, isopropyl alcohol, ammonium thiocyanate, methanol, mercury, lead, cadmium, beryllium, sodium hydroxide, and potassium permanganate. Chemicals and waste materials are scheduled to be removed from the building prior to commencement of decommissioning activities. Potential hazards in the building are summarized in Table 2-4. These hazards were identified by a review of facility records and a

visual survey of the building by project personnel, whom were assisted by building personnel familiar with the operational history of the facility

The following potential hazards identified during the RLCS will be addressed during tenant relocation

- The liquid nitrogen system will be deactivated and associated pressurized cylinders will be removed from the building
- Laboratory chemicals will be removed from the building

The following potential hazards identified during the RLCS will be addressed after tenant relocation, but prior to building demolition

- All ACM will be removed by a separate licensed contractor
- Fluorescent light ballasts will be evaluated for PCBs. Ballasts containing regulated levels of PCBs will be removed by the decommissioning contractor and packaged and shipped to a Toxic Substances Control Act- (TCSA-) regulated disposal facility by RFETS Waste Management
- Utilities and facility safety systems will be disconnected by Plant Power and Maintenance
- Material remaining in the building will be removed and properly managed

#### **2.4.1 Asbestos**

Asbestos-containing materials (ACM) were inspected by a State-certified inspector the week of April 7, 1997. The inspection and evaluation was conducted in accordance with the guidelines specified in the Asbestos Hazard Emergency Response Act (AHERA) and in compliance with the US Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and State of Colorado asbestos inspection regulations. Abatement will be conducted by a contracted State-qualified abatement company.

A permit is required for asbestos abatement operations in accordance with Regulation 8, Control of Hazardous Air Pollutants, Part B, Section 3, (1)(a)(i). Notification will be made to the State of Colorado in accordance with Regulation 8, Part B, Section 3, (1)(a)(iii). A separate form for demolition is required for demolition in accordance with Regulation 8, Part B, Section 3, (3)(b)(i, ii, iii).

The following ACM sources and approximate volumes will be abated prior to commencement of decommissioning activities: thermal system insulation (900 linear feet), cementitious wallboard (3,450 square feet), drywall with tape and compound (4,000 square feet), resilient flooring (10,600 square feet), gray paper duct insulation (100 square feet), and mastic adhesive (40 square feet).



**Table 2-4 Contaminants of Concern (COCs)**

<b>COC</b>	<b>Location</b>	<b>Implementation</b>
Asbestos Containing Material (ACM)	Detected in floor and ceiling tiles, wall board, and as pipe insulation in most rooms	To be remediated by a State-certified Asbestos Abatement Contractor See Section 2 4 1
Beryllium	Present in Rooms 111 and 112	See Section 2 4 2
Chemicals	Chemicals utilized in laboratory work have been identified	All chemicals will be accumulated and removed from the building by the chemical handling group prior to commencement of decommissioning activities See Section 2 4 3
RCRA hazardous waste in Satellite Accumulation Areas (SAAs)	Present in Rooms 103A, 124, 125, 127, and 156	Each waste stream will be managed according to associated waste components See Section 2 4 4
Perchloric acid fume hoods	Present in Rooms 157, 127, 112, and 105	See Section 2 4 5
Pressurized gas cylinders and liquid nitrogen	Present in laboratory areas	See Section 2 4 6
Polychlorinated biphenyls (PCBs)	Present in fluorescent light ballasts	See Section 2 4 7
Radiologically Contaminated Materials	Present in overhead piping, floor tiles in historical spill areas, on fume hoods, and laboratory counter tops	See Section 2 4 8
Metals (arsenic, cadmium, lead, lead-based paint, and silver)	Includes lead bricks and shielding, lead-based paint, lead and silver solder, nickel cadmium (NiCd) and lead acid batteries, and silver in photographic negatives	See Section 2 4 9

#### **2.4.2 Beryllium**

Thirty-nine (39) metal samples were collected by qualified beryllium sampling technicians from Rooms 111 and 112, laboratories that processed beryllium-contaminated samples as a function of site environmental soil sampling programs. The samples were submitted to an external analytical laboratory for analysis. Three (3) swipe samples taken in Rooms 123A, 111, and 112 indicated trace readings between 0.37  $\mu\text{g}/\text{ft}^2$  and 2.04  $\mu\text{g}/\text{ft}^2$  (RMRS 1997). All results were below the RFETS site housekeeping level of 25  $\mu\text{g}/\text{ft}^2$ , a standard developed by the Atomic Energy Commission in approximately 1949 and adopted and used by RFETS since the 1960's.

Initial decommissioning efforts in these rooms will include decontamination of all equipment surfaces.

#### **2.4.3 Chemicals**

Analytical chemicals currently associated with Building 123 operations are tracked by the RFETS Chemical Tracking Group under the "Right-to-Know" provisions of the Superfund Amendments and Reauthorization Act (SARA) and are being managed by the laboratories. The chemicals will be removed immediately following termination of laboratory operations. Chemicals remaining in the building will be managed by the RFETS Chemical Tracking Group which will utilize or package chemicals for disposal. The current inventory of the building includes nitric acid, hydrochloric acid, hydrofluoric acid, oxalic acid, ammonium hydroxide, formic acid, perchloric acid, toluene, isopropyl alcohol, ammonium thiocyanate, DDCP, methanol, mercury, lead, cadmium, beryllium, sodium hydroxide, and potassium permanganate.

#### **2.4.4 RCRA Hazardous Waste in Satellite Accumulation Areas (SAAs)**

Satellite Accumulation Areas (SAAs) were established in Rooms 103A, 124, 125, 127, and 156 to ensure proper storage of RCRA hazardous wastes near the point of generation. The SAAs are no longer active. The chemicals have been properly containerized, labeled and dispositioned. Representative waste types that were accumulated in each area are summarized as follows:

- Room 103A - Combustibles, waste isopropynol, DDCP/toluene
- Room 124 - Liquid waste methanol, isopropynol
- Room 125 - DDCP/toluene, isopropynol contaminated with toluene
- Room 127 - Hydrochloric acid, hydrofluoric acid, ethanol
- Room 156 - Combustibles, waste toluene/DDCP, isopropynol

#### **2.4.5 Perchloric Acid**

Perchloric acid hoods currently occupy four rooms (105, 112, 127 and 157(2 hoods) within Building 123. Chronic use of perchloric acid may have caused the chemical to crystallize inside the hoods. The crystalline form may be sensitive to shock and could represent a potential physical hazard during decommissioning activities. To mitigate such a hazard, all hoods and duct work will be flushed and the rinsate directed to the Site sanitary wastewater treatment plant. Site Health and Safety have reviewed requirements for decontamination of perchloric acid hoods. The steps outlined in the requirements include interviews with laboratory personnel, building walkdowns, necessary repairs, and washdowns of all hoods and associated ductwork, and dismantlement of ductwork into easily managed sections. The requirements also define proper segregation and disposal of all solid duct material.

#### **2.4.6 Pressurized Gas Cylinders and Liquid Nitrogen**

Pressurized gas cylinders used by the laboratories will be removed by laboratory personnel during tenant relocation. The liquid nitrogen system will be disconnected and removed in conjunction with utility deactivation.

#### **2.4.7 Polychlorinated Biphenyls (PCBs)**

Potential exists for the presence of PCBs in fluorescent light ballast. Consequently, all light ballast will be evaluated for PCB contamination and properly segregated after the building has been vacated and lights are no longer required. All light ballast marked "PCB Free" or "No PCBs" will be managed as non-hazardous solid waste and disposed at a sanitary landfill. Ballast marked "PCBs" or not marked and not leaking will be packaged for disposal at an TSCA-permitted facility. Leaking PCB light ballast and unmarked light ballast will be managed as fully-regulated PCB Articles.

No other potential PCB-contaminated systems, including painted walls, have been identified in Building 123.

#### **2.4.8 Radiologically-Contaminated Materials**

Radiological assessments have been conducted in Building 123 by RFETS Radiological Safety. Most of the following Radiological Material Management Areas (RMMAs) exist in laboratory hoods: Rooms/Labs 103A, 105, 112, 124, 125, 156, 157, and 163. RCAs exist in Room/Labs 103A, 105, 112, 123, 124, 125, 126, 127, 135, 149, 155A, 156, 157, 158, 163. Radiological sources are stored in 123, 126, and 155A. All RMMAs and RCAs are managed according to associated radiological characteristics.

Floor tiles removed from areas that exhibit noticeable signs of spill contamination or are suspect of contamination as a result of a known spill incident, will be treated as LLW. In the event that contaminated tiles cannot be scabbled from the foundation, entire floor sections which indicate evidence of spill contamination will be removed and treated as LLW.

#### **2.4.9 Metals**

Samples were collected from selected painted surfaces in Building 123 and were analyzed for metals lead, chromium, cadmium, and arsenic, to support industrial hygiene efforts. Site historical knowledge and recommendations by an accredited inspector were utilized in the sampling process. Twenty-one (21) samples were collected, and analysis was conducted using Atomic Absorption Spectroscopy by a third independent party. All paints indicated detectable levels of

one or more of the metals. Samples will be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP). Should the TCLP analysis indicate the painted surfaces are leachable for heavy metals, they will be managed as hazardous waste. Otherwise, painted surfaces of construction materials will be managed as standard construction debris.

Lead bricks and shielding are located throughout the radiological areas to mitigate background radiation and protect personnel. The largest volume of lead is used to shield detectors and radiological sources. All lead or lead-bearing material will be removed by the source owners or dispositioned through the RFETS Property Utilization and Disposition Department.

### **3.0 PROJECT APPROACH AND OBJECTIVES**

Building 123 will be decommissioned using the approach outlined in the following sections. The primary decommissioning objectives will be accomplished according to an integrated scope, schedule, and cost control system. All compliance documentation and project plans will be prepared and approved by RFETS Decommissioning and Demolition Management under a Project Execution Plan to ensure that decommissioning efforts are conducted in a safe and compliant manner. All building utilities and associated facility safety systems will be disconnected prior to commencement of building demolition. The building will be safely dismantled, and the resulting debris and waste will be properly characterized and disposed at appropriate off-site facilities. In addition, soil sampling beneath and adjacent to the building will be conducted using the methods described in a Sampling and Analysis Plan (SAP) prepared for this project. The SAP will be submitted to CDPHE at least 45 days prior to implementation. Underground pipelines will be managed with respect to soil sample analyses results. Soil remediation, if necessary, will be conducted with respect to RFCA Action Levels in a manner that is protective of human health and the environment.

This project will use standard industry decommissioning practices, but will also incorporate lessons learned from previous demolition projects at RFETS and utilize personnel with expertise in decontamination and decommissioning activities.

#### **3.1 SCOPE**

Activities supporting the decommissioning effort have been divided into three general areas: (1) planning and engineering, (2) characterization, and (3) remediation. The scope includes removal of all internal piping, ventilation, and process waste systems. All rubble and materials removed during decommissioning activities are to be recycled or disposed at an appropriate off-site facility.

##### **3.1.1 Planning and Engineering**

Regulatory activities are completed as part of this action to ensure that the action is conducted in a manner consistent with the RFCA and regulations of the State of Colorado. Activities include assurance of public involvement and practical mitigation of environmental impacts. Planning objectives have been accomplished through project scoping meetings with CDPHE and EPA, and approval of the PAM document by the appropriate regulatory bodies and the general public. Other regulatory activities include General Services Administration (GSA) and Housing and Urban Development (HUD) notifications, establishment of the CERCLA administrative record, compliance with the Historic Preservation Act [including site programmatic consultation with the Colorado State Historic Preservation Office (SHPO) and the US National Park Service], and notification of asbestos abatement.

Specific planning documents include, a Reconnaissance-Level Characterization Report (RCLR), a Health and Safety Plan (HSP), a Waste Management Plan (WMP), an IHSS Sampling and Analysis Plan (SAP), and documentation detailing the programmatic consultation with the SHPO. Also, the SAP, Remediation Plan and RCRA Unit 40 Closure Plan will be submitted to CDPHE for review and approval prior to initiation of work governed by those documents. The documents will be provided to prospective decommissioning contractors as part of the project procurement package and will also be available to the general public upon request. A site visit will be conducted to facilitate preparation for demolition activities. A design package will be prepared for decommissioning activities which will define locations and configurations of active and inactive utility systems, summarize sample and analysis data, indicate as-built drawings, and present engineering estimates for building decommissioning.

### **3.1 2 Characterization**

#### **Building Characterization**

Characterization activities associated with the decommissioning effort include survey of interior building surfaces. A final radiological characterization and survey for Building 123 will be performed in accordance with the decommissioning guideline in Interagency Multi-Agency Radiological Site Survey and Site Investigation Manual (MARSSIM) a draft decommissioning document developed by the Nuclear Regulatory Commission (NRC), Department of Defense (DoD), and the DOE in conjunction with Draft NRC NUREG/CR-5849, *Manual For Conducting Radiological Surveys In Support of License Termination*. Copies of the documents are included as Attachment A. The purpose of a final survey will be to verify that demolition rubble can be released to a commercial sanitary or demolition landfill. The survey will be completed following asbestos removal.

The methodology used to classify radiological areas of the building is described below.

Class 1 impacted areas exhibit or have demonstrated potential for radioactive contamination based on site operating history. Such areas may also indicate radioactive contamination that exceeds the applicable limits, based on previous radiological surveys. Typical Class 1 impacted areas have been remediated as a response to leaks and spills and include former disposal or burial sites, waste storage sites and areas with contaminants in discrete solid pieces of material that exhibit high specific activity.

Class 2 impacted areas exhibit or have demonstrated potential for radioactive contamination based on site operating history, but are not expected to exceed the applicable limits. Typical Class 2 areas include locations of unsealed radioactive material, potentially contaminated transport routes, upper walls and ceilings of buildings or rooms subjected to airborne contamination, areas downwind from stack release points, areas where low concentrations of radioactive material were handled, and perimeters of former contamination control areas.

Class 3 impacted areas are not expected to contain any radioactivity, or are expected to exhibit levels of residual radioactivity at a small fraction of the applicable limits, based on site operating history and previous radiation surveys. Examples of Class 3 areas include buffer areas around Class 1 and Class 2 areas and areas of very low potential for residual contamination.

Non-Impacted areas have no potential for residual radiological contamination.

Characterization/scoping surveys were used to determine the classification of each area in Building 123. Impacted areas required the performance of extensive radiological surveys based on requirements for Class 1, Class 2 or Class 3. Areas initially classified as Class 1, Class 2 or Class 3 impacted were reevaluated when initial characterization indicated that no radiological contamination exists above the applicable limits, based on potential radiological contamination from historical reviews versus actual contamination shown on previous surveys. A comprehensive, but less extensive survey was performed on all other building surfaces considered to be Class 2 or Class 3 impacted. The initial classification may be modified as additional in-process data are collected.

Class 1 impacted areas were divided into one-square-meter grids, and a minimum of one fixed and one removable contamination measurement for beta/gamma and alpha was obtained for each grid location. In addition, a 100% scan for beta/gamma and alpha was performed on all accessible surface areas. Class 2 impacted areas were divided into one-square-meter grids, and a minimum of one fixed and one removable contamination measurement for beta/gamma and alpha was obtained for each grid location. A 10% scan for beta/gamma and alpha was performed on all accessible surface areas. Class 3 impacted areas were surveyed at a minimum frequency of one fixed and one removable contamination measurement for beta/gamma and alpha for each nine square meters of accessible surface areas. In addition, 10% of all accessible surface areas were scanned for beta/gamma and alpha contamination.

Areas considered to be non-radioactive were classified as Class 3 impacted areas. Non-impacted areas will not require a radiological survey.

Areas that have been identified as Class 1 are Room 105 (ceiling not impacted) and the process waste sumps in Rooms 156, 157, and 158. Areas identified as Class 2 are 106, 109, 109A, 109B, and 123 (floors only), and Rooms 103, 103A, 111, 112, 124, 125, 127, 156, and 157 (ceilings not impacted). All remaining rooms and areas in Building 123 have been identified as Class 3. Buildings 113 and 114 are classified as non-impacted areas. Building 123S will be moved for reuse and was not classified.

All contaminated building surfaces, equipment and demolition materials will be managed according to waste type, with respect to Attachment 9.0 of RFCA. Following decontamination activities, the RFETS Building Radiation Cleanup Standard (BRCS) will be utilized to determine if residual radioactive constituents contained in remaining equipment and demolition debris is compliant with RFCA guidelines and appropriate as-low-as-reasonably-achievable (ALARA) considerations. The BRCS is currently under development in coordination with the EPA, CDPHE, and DOE. Until the BRCS is approved, more conservative criteria defined in DOE Order 5400.5 and associated RFETS radiation protection procedures will be used to determine if building surfaces, equipment and demolition debris are acceptable for unconditional release.

### **Soil Characterization**

Soil characterization will include sampling and analysis of soil beneath and surrounding Building 123. Following removal of the building superstructure, samples will be collected through the slab to determine need for soil remediation. A SAP will be written to guide characterization activities in these areas. The SAP will be finalized prior to the award of the decommissioning contract. The SAP will incorporate a review of existing records to establish the location of potentially contaminated areas and to define sampling protocol. Sample location, depth and frequency will include recommendations from the RFETS Statistical Applications Group. Current planning indicates a need for approximately fifty (50) soil samples from beneath the slab of Building 123 and from areas surrounding underground OPWLs. Samples will be collected at depths immediately below the pipe to locate any contamination that may have leaked from the lines. Samples will be analyzed for volatile organic compounds (VOCs), Target Analyte List (TAL) metals, radionuclides, and nitrates. Data quality requirements supporting the analysis effort will conform to criteria established in *Guidance for the Data Quality Objective Process*, EPA QA/G-4 (EPA 1994).

### **OPWL Characterization**

A plan for partial closure of RCRA Unit 40 will be written to characterize and manage all active OPWLs associated with Building 123, as all abandoned lines were properly decommissioned prior to implementation of RCRA regulations. Characterization will include flushing the active lines with rinse water to remove residues, then sampling the final rinsate for constituents listed in Section 3.1.2.2. Abandoned OPWLs will be managed according to analyses results from soil samples collected adjacent to and beneath the lines.

## **3.1.3 Remediation**

### **Building Removal**

As part of the decommissioning process, all utilities and electrified systems will be disconnected and capped. The scope of the building decommissioning effort also includes removal of all interior piping, ventilation and above-slab waste systems. Demolition activities will be conducted in two primary phases. Initially, the hoods, laboratory counters, cabinets and radiologically contaminated floor tile will be removed from the laboratories. Removal will allow radiological surveys to be conducted on the walls of the laboratories before asbestos abatement. Hood ductwork and scrubbers will also be removed during this phase. Removal of the ductwork and scrubbers will eliminate a potential hazard (disruption of crystallized perchloric acid, see Section 2.4.5), prior to demolition of the structure. All building utilities will also be deactivated during this phase. Following removal of all asbestos from the building, a final radiological survey of the building will be performed to verify that all building rubble can be disposed in an off-site landfill.

The second phase of demolition involves removal of the building superstructure, which will be removed using mechanical shears and front-end-type loaders. A crane will be utilized for removing large equipment and debris, and roof-based systems. Use of heavy equipment will minimize worker exposure to demolition hazards. Fugitive airborne emissions will be minimized with water sprays. The building will be surveyed for free release prior to demolition, and building rubble will be segregated and disposed at properly licensed facilities, depending on the type of waste stream created as a result of demolition activities. Friable asbestos will be disposed at Kettelman, California, non-friable asbestos and sanitary waste will be disposed at USA Waste, Erie, Colorado, LLW will be disposed at Nevada Test Site (NTS), Radioactive ACM will be disposed at Hanford Site, Washington, and low-level mixed waste (LLM) will be stored temporarily on site until an appropriate off-site facility is identified.

### **Soil Remediation**

Remedial actions will be contingent upon compliance of sample analysis results with Tier II "action level" criteria defined in Appendix 6 of the RFCA. The extent of subsurface contamination will dictate the method of remediation. Areas in which soil sample results meet Tier II criteria will require no further action. Areas that exhibit radioactive or chemical contamination at levels in excess of RCRA regulatory levels will be excavated using conventional techniques and removed and disposed offsite as RCRA hazardous waste. Soil will be moved to a temporary staging area immediately adjacent to the site and placed in rolloff containers until proper disposition is determined. Contaminated soil will ultimately be disposed offsite as RCRA hazardous waste. At the completion of excavation activities, verification samples will be collected along the base and sides of the excavation(s) to determine post action condition of the subsurface soils. Samples will be analyzed according to the SAP. If analytical results indicate that contamination is present above Tier II Action Levels, further excavation and sampling will continue until the Tier II criteria are met.

### **OPWL Remediation**

Proper closure of active lines will be contingent upon rinsate and soil sampling analyses results. In the event that no contamination above Tier II action levels is detected, active lines will be foamed and capped in place. Closure of abandoned lines will be managed with respect to soil sampling analyses results. Any indication of soil contamination as a consequence of leaking underground lines will eventuate proper removal and disposal of the lines. Partial closure of RCRA Unit 40 will be conducted in accordance with Colorado Hazardous Waste Regulations (265, Subpart G) which requires a 30-day public comment period. Remedial and disposal options for partial closure of RCRA Unit 40 will be further defined in a separate closure plan.

## **3.2 WORKER HEALTH AND SAFETY**

The project will comply with OSHA construction standards for Hazardous Waste Operations and Emergency Response, 29 CFR 1926. An HSP is being developed in accordance with this standard. The plan will address potential hazards of each phase of the decommissioning process and specify the requirements and procedures for personnel protection. DOE Order 5480.9A, *Construction Project Safety and Health Management*, will provide additional guidance for this project. The DOE order requires the preparation of Activity Hazard Analysis to identify each task and associated hazards, and the controls necessary to mitigate the hazards. The requirements will be integrated as appropriate. In the event of an unforeseen deviation from the planned approach, a second Activity Hazard Analysis will be prepared to address altered circumstances,



and work will proceed according to the appropriate control measures. Data and controls will be continually evaluated. Radiological Work Permits will be generated for contaminated areas and will identify the location of potential surface contamination, define the appropriate PPE, and apply appropriate airborne radioactivity controls, if necessary. As required by 10 CFR 835, *Occupational Radiation Protection*, all applicable implementing procedures will be followed to insure protection of the workers.

### **3 2 1 Personal Protective Equipment (PPE)**

Decommissioning activities may potentially expose workers to physical and chemical hazards and low levels of radiological activity. Physical hazards associated with decommissioning activities include the use of heavy equipment, electrical shock, noise, heat stress, and work on elevated surfaces. Physical hazards will be mitigated by appropriate use of personal protective equipment (PPE), and application of pre-engineering evaluations, pre-evolutionary meetings, proper training, and administrative controls. Decommissioning activities which require dismantlement of radiologically contaminated systems will be conducted using Level C PPE. This level includes a full-face respirator, steel toe safety shoes, hard hat, anti-C Tyvek coveralls, gloves, disposable shoe covers, and hearing protection (if applicable). Decommissioning of uncontaminated systems or structures will be conducted using Level D PPE, which includes safety glasses or face shield, with neither a respirator nor Tyvek coveralls as described above.

Employee exposure evaluations conducted by an Industrial Hygiene (IH) Site Health and Safety Officer will determine PPE levels, which may change with conditions.

### **3 2 2 Ambient Air Monitoring**

The existing Radioactive Ambient Air Monitoring Program (RAAMP) continuously monitors airborne dispersion of radioactive materials from the Site into the surrounding environment. Thirty-one (31) samplers comprise the RAAMP network. Twelve (12) of these samplers are deployed at the Site perimeter and are used for confirmatory measurements of off-site impacts. The remainder are used as backup measures for determining local impacts from clean-up projects. Building 123 was not a plutonium, uranium or beryllium operations building, and based on results of radiological and beryllium surveys, the decontamination and demolition of Building 123 will not warrant special environmental monitoring. However, in response to a possible need for remediation of soil beneath the building slab with respect to soil sample analysis results, the project will operate a minimum of two low volume particulate samplers in the vicinity of the project site. One sampler will be located in the predominant upwind direction, and at least one sampler will be placed in the prevailing downwind direction. Specific sampler locations will be selected based on vehicular and pedestrian traffic patterns. Air Quality Management (AQM) will be consulted to select sampler locations. The samplers will be operated continuously during active decommissioning activities and will be changed weekly. AQM will reevaluate the configuration of the air monitoring network if project management surveillance of operations indicates a potential for significant increases in radionuclide emissions. Action levels associated with surveillance activities are defined in the Facility Implementation Plan (FIP). AQM will be appropriately notified when action levels are exceeded.

Water sprays will be used to minimize resuspension or fugitive dust emissions. In addition, earth-moving operations will not be conducted during periods of sustained high winds. If necessary, AQM will identify monitors within the existing ambient network located in the immediate area of Building 123, and the frequency of filter collection and filter analysis at those locations will be adjusted to provide timely information on the project emissions.

### 3 3 Quality Assurance

A commitment to program quality and continuous improvement is applied at all levels from project start through completion. Adherence to the commitment is instrumental in the success of the project. All project personnel are responsible for following approved QA program requirements and participating in quality improvement activities.

Quality Assurance/Quality Control personnel are involved at the initial planning stages of the project, during site preparation, and during project execution. The QA organization assumes a proactive role during the project by identifying and/or preventing potential problems or shortcomings, offering solutions, and assisting in corrective action steps. QA personnel administer and perform duties in accordance with approved QA program requirements. The scope of the QA/QC program ensures:

- Consistency and effective implementation of management/DOE directions and policies with other project/DOE requirements through audits and surveillances,
- Assurance of document review and approval requirements through review of applicable procurement and work documents,
- Validity of data gathering methodologies,
- Compliance with standard operating procedures,
- Integrity of waste packaging and incoming materials through inspections,
- Facility characterization through performance of facility walkdowns,
- Initiation of monitoring projects for potential improvements and,
- Emplacement of corrective action initiatives

### 3 4 WASTE MANAGEMENT

A Waste Management Plan will be developed for the project to define waste management activities. Estimates of waste volume indicate that decontamination, dismantlement, and decommissioning of Building 123 and the remediation of surrounding areas will generate less than 300 cubic yards (cu yd<sup>3</sup>) of rubble and contaminated soil. The waste will be designated as LLW, LLM, hazardous, or industrial waste and will be managed in accordance with State and Federal regulations by properly trained personnel. Waste Operations will arrange for transportation to an appropriate off-site facility. Manifests will be the responsibility of RFETS Traffic Department. Waste management training requirements are outlined in *Part IX Personnel Training of the Rocky Flats Environmental Technology Site RCRA Permit* (DOE 1997). The training matrix defined in Part IX details the training requirements for all personnel managing hazardous waste. Although the document is part of a permit, all RCRA training requirements of 6 CCR 1007-3, 265.16 are met.

#### 3 4.1 Non-Regulated Waste

Release of non-contaminated materials, debris, and equipment from a site contaminated with

hazardous constituents is accomplished by demonstrating that the materials or wastes do not exhibit any of the characteristics of hazardous waste as identified in Subpart C of 6 CCR 1007-3 SS261. Additionally, the material must not be qualified as a listed waste as identified in Subpart D, or be excluded under provisions in 6 CCR 1007-3 SS261 4, *Exclusions*. Non-contaminated recyclable materials, such as scrap metal, will be placed in approved waste crates and later segregated into bins supplied by Property Utilization and Disposal (PU&D). Additional items will be placed onto pallets for shipment to PU&D. All remaining non-regulated, standard industrial-type waste generated from decommissioning activities will be disposed at an off-site landfill.

### **3.4.2 Regulated Waste**

Process knowledge and relative operating history will be used to manage contaminated areas apart from unaffected areas. Contaminated material will be segregated, categorized, and packaged according to the specifications for disposal in permitted hazardous waste, LLW, or LLM facilities. Waste characterization data and packaging requirements for LLW will meet the procedures and policies for managing LLW as outlined in the RFETS Low-Level Waste Management Plan (Low Level Waste Management Plan 44-RWP /EWQA - 0014, Rev 1, 1996). Waste Operations will designate temporary storage locations for LLW, LLM, or hazardous waste, as conditions warrant.

## **4.0 ENVIRONMENTAL IMPACTS**

The National Environmental Policy Act (NEPA) requires that actions conducted at the RFETS consider potential impacts to the environment. While no separate NEPA documentation is required for this effort, RFCA requires DOE to consider environmental impacts of the proposed action and of alternatives as a part of this document.

## **4.1 PROPOSED ACTION AND ALTERNATIVES**

### **4.1.1 Proposed Action**

The proposed action is the Decommissioning and Demolition (D&D) of Building 123, including site remediation. D&D activities and site remediation are to follow a project-specific plan approved by DOE and CDPHE. Activities would generally consist of site and facility characterization, decontamination, dismantlement, waste disposition and remediation of any contaminated soil and pipelines. All hazardous, LLW and LLM generated by D&D activities would be transported to an appropriate offsite facility for disposal. The objective of the proposed action is to obtain from DOE and CDPHE a timely release of the site for unrestricted use.

D&D includes removing or decontaminating equipment, decontaminating building surfaces and structural members, surveying the facility for residual contamination, and characterizing, packing, and shipping the resulting wastes. Removal of residual contamination would be initiated with the simplest and least aggressive method, such as decontamination using vacuums and damp cloths. Increasingly aggressive techniques would be employed, as appropriate, to remove the remaining fixed contamination, including hand washing or scrubbing, dry abrasive blasting and scabbling, or scarification. New, innovative technologies will be considered if sufficiently developed and cost-effective.

Subsequent D&D activities would include application of fixatives to all contaminated surfaces to prevent the dispersion of contaminants during dismantlement. A survey would be performed to assure that all contaminants are fixed in place. The entire facility would be dismantled (with the

exception of the building slab) and debris would be shipped to appropriate offsite facilities for disposal

Final D&D activities would include remediation of soil and underground piping beneath and surrounding the building slab. Remediation may include removal of contaminated soil, associated pipelines, and/or the concrete slab. Following proper remediation, the site would be regraded and seeded in an attempt to return the site to a natural state.

#### **4.1.2 Alternative Actions**

##### **Alternative 1 to Proposed Action: No Action, Maintain Safe Shutdown Decontamination**

The alternative would involve maintenance of Building 123 in a safe-shutdown status, including a commitment to long-term surveillance and upkeep, while performing a continued environmental monitoring program to ensure that contamination has not escaped to the environment. Regularly scheduled inspection and maintenance of health, safety, and radiation protection equipment would be performed and documented.

##### **Alternative 2 to Proposed Action: Partial Facility Dismantlement with Minimal Decontamination**

The alternative would involve minimal decontamination and demolition activities. All building equipment would be removed, including all hoods and overhead process waste lines. The remaining structure and surrounding area would be treated as described in Section 4.1.2.1.

Evaluation of Alternatives—Both alternatives were rejected as operative actions, since such efforts would prevent proper cleanup of RFETS as specified under the Life Cycle Baseline Maintenance and surveillance would need to increase with time as eventual degradation of the building structure would pose a threat to the public through chemical and physical hazards. Potential also exists for groundwater contamination through release of contaminants to the soil as the integrity of piping systems and sumps will eventually be compromised.

## **4.2 POTENTIAL ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION**

Potential environmental effects associated with the D&D of Building 123 are described in the following sections:

### **4.2.1 Geology and Soils**

Decommissioning activities will disturb less than one (1) acre of land, most of which has previously been disturbed. Activities such as excavating could cause localized soil slumping to occur. Soil recontouring will be conducted after buildings are removed. Potential effects will be short-term increases in soil erosion and siltation, and small, temporary losses in soil productivity. A commitment to complete appropriate revegetation will be initiated to mitigate any impacts caused by soil disturbance activities. All project areas not paved or already vegetated will be revegetated as directed by Site ecologists. Topsoil of sufficient quality will be used to support revegetation.

### **4.2.2 Air Quality**

No continuing long-term air quality impacts are expected after the project has been completed. Short-term impacts will be mitigated by dust suppression techniques and excavation controls. The potential for release of small quantities of toxic, hazardous and/or radioactive contaminants will remain, though the potential health effects to workers and the public from such releases is expected to be negligible. Air quality impacts are further discussed in Section 5.1.1, and air monitoring criteria are defined in Section 3.2.2. Dust generated during the decommissioning effort will be managed with engineering controls.

### **4.2.3 Water Quality**

Major surface water and groundwater quality impacts are not anticipated. The excavation area(s) will include run-on and run-off controls to prevent stormwater from contacting the wastes, and are not expected to intersect the groundwater table. Silt fences or similar barriers will be installed to prevent storm water runoff from carrying excavated soil from the project site. Removal of buildings and excavation of paved areas will result in a net decrease in storm water runoff from the Building 123 area and a corresponding increase in the amount of precipitation that percolates into the soil. Most of the local precipitation either evaporates on the ground surface or is taken up by vegetation. Surface water monitoring has been established at the Central Avenue ditch by RFETS Water Quality under a monitoring IRA.

### **4.2.4 Fauna and Flora**

Building 123 is not located near any wetlands or habitat suitable for the threatened and endangered species. A migratory bird survey of the project site will be conducted by Site ecologists within two weeks of the beginning of field activities, and activities will not be initiated

except in compliance with the Migratory Bird Species Act and as approved by Site ecologists. An attempt will be made to preserve the condition of four large trees along the north end of the site. Although no penalties exist for removing the trees, preservation will provide nesting areas for aviary species. If removal is necessary, the trees will be surveyed for nests by Site ecologists two weeks prior to destruction.

#### **4.2.5 Human Health**

Human health impacts will be maintained within applicable limits for worker protection, and requirements will be implemented to control the dispersion of contamination to air, water, and soil. Exposures to workers and the public will be controlled and monitored in accordance with standards defined in Section 5.0. Health effects to workers and the public are expected to be well within applicable limits, as operating procedures and other requirements will be implemented to protect human health.

Occupational safety impacts will also be mitigated according to applicable requirements. The Site *Cumulative Impacts Document* estimates a sitewide illness/injury rate of 13.6 per 200,000 hours worked in D&D activities.

#### **4.2.6 Noise**

Decommissioning activities will involve common industrial activities (e.g., wiping, disassembly, sawing and crushing) with a variety of associated noise levels. Many of the activities will be conducted within the building, thus, elevated noise levels will be muffled by the building structure. Other, less common techniques such as scabbling, blasting and demolition by pneumatic hammer, wrecking ball, or other devices are expected to generate higher than ambient noise levels. Workers involved in such activities will use appropriate hearing protection devices. Outdoor activities will be conducted in a safe manner in which noise will not affect non-involved workers and the public.

#### **4.2.7 Historical Resources**

The programmatic agreement between the DOE Rocky Flats Field Office, the Colorado SHPO, and the Advisory Council on Historic Preservation has been approved. Building 113 is a guard post of the type denoted for documentation as a historical building. The documentation is under preparation and scheduled to be completed by September 30, 1997. Arrangements are being made to take streetscape photographs of Building 123 which has been designated as a Potentially Historic Structure. The terms of the agreement will be met before initiation of decommissioning activities.

#### **4.2.8 Visual Impacts**

Demolition of Building 123 and associated buildings will result in a flat, ground-level surface of pavement or revegetated soil where the buildings had previously stood. The appearance of surrounding areas will remain as industrial until additional buildings are demolished.

#### **4.2.9 Cumulative Impacts**

Decommissioning and demolition of the Building 123 cluster comprises part of a broader program to decommission and demolish all but nine (9) of the approximately 700 buildings on the RFETS site. The cumulative effects of this program are described in detail in Section 5 of the *Cumulative*

*Impacts Document* In summary, such effects will result in a site with only nine (9) buildings, selected streets, a minor degree of infrastructure (water, sewer and electric service), and a large area of vacant land

## **5.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

RFETS decommissioning actions performed under a PAM must attain, to the maximum extent practicable, Federal and State applicable or relevant and appropriate requirements (ARARs) ARARs associated with this document are a subset of the Federal and State requirements, which pertain directly to actions or conditions in the environment and are either applicable or relevant to particular decommissioning activities D&D efforts performed according to the PAM must attain, to the maximum extent practicable, Federal and State ARARs

Applicable requirements are cleanup standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site

Relevant and appropriate requirements are cleanup standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law, that while not applicable to a pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site, can sufficiently address problems or situations similar to those encountered at a CERCLA site

ARARs associated with D&D projects include

chemical specific quantitative health- or risk-based restrictions upon exposure to types of hazardous substances [e g , drinking water standards as defined by Maximum Contaminant Levels (MCLs)],

action specific technology-based requirements for actions taken upon hazardous substances (incinerator standards that require particular destruction and removal efficiency), and

location specific restrictions upon activities in certain special locations (standards that prohibit certain types of facilities to operate in designated flood plain areas)

Table 5-1 is a general list of ARARs that are applicable for this project A specific list is included as Attachment B

### **5.1 CHEMICAL-SPECIFIC REQUIREMENTS AND CONSIDERATIONS**

The project will encounter conditions regulated by the following chemical specific restrictions The restrictions will be incorporated into the project planning effort and will be assured by following site procedures or by direct inclusion in the IWCP

#### **5.1.1 Airborne**

The following Colorado Air Quality Control Commission (CAQCC) Regulations serve as applicable requirements

- Reg 8, Part A, (40 CFR Part 61) Subpart H regulates radionuclide emissions other than radon from DOE facilities and will apply to Building 123 if radiological contamination is discovered during characterization activities. 40 CFR 61.92 requires that no member of the public receive more than 10 mrem per year above background from airborne sources of radiation. Compliance with 40 CFR 61.92 is performed on a sitewide basis as a response to all RFETS sources, in which stack monitoring is required for all release points contributing greater than 0.1 mrem/year. Based upon preliminary estimates, monitoring will not be required. A formal analysis will be prepared.
- 
- Reg 8, Part B defines emission standards for asbestos.
- Reg 8, Part C establishes an emission standard for lead in ambient air. The regulation states that no person shall cause or permit emissions of lead into the ambient air which would result in an ambient lead concentration exceeding  $1.5 \mu\text{g}/\text{m}^3$  averaged over a one-month period. The regulation will apply to any decommissioning activities with the potential to emit lead into the ambient air.

*Emission Controls for Particles* (5 CCR 1001-1) and *Emissions of Volatile Organic Compounds* (5 CCR 1001-9) may be applicable to soil excavation activities. Fugitive dust emissions controls are appropriate and relevant for the demolition. A list of hazardous air pollutant ARARs associated with this project is included in Attachment B.



**Table 5-1 General List of Applicable or Relevant and Appropriate Requirements for Decommissioning and Demolition Activities at RFETS**

Requirement	Applicable	Relevant and Appropriate	TBC
DOE Order 5400 5, <i>Radiation Protection of the Public and Environment</i>	No	No	Yes
40 CFR 191, <i>Radioactive Dose Standards</i> (Spent Nuclear Fuel, High Level and Transuranic Radioactive Wastes)	NA	NA	NA
DOE Order 5820 2A, <i>Radioactive Waste Management</i>	No	No	Yes
6 CCR 1007-14, <i>Colorado Low Level Waste</i>	Yes	No	No
Colorado Air Quality Control Emission Standards for Asbestos Regulation 8, <i>Control of Hazardous Air Pollutants</i>	Yes	No	No
5 CCR 1001-14, <i>Ambient Air Quality Standards</i>	Yes	No	No
5 CCR 1001, <i>Colorado Air Pollution Regulations</i>	Yes	No	No
40 CFR 61, Subpart H, <i>National Emission Standards for Hazardous Air Pollutants</i>	Yes	No	No
5 CCR 1002-8, <i>Colorado Basic Standards and Methodologies for Surface Water</i>	NA	NA	NA
5 CCR 1002-8, <i>Colorado Basic Standards for Groundwater</i>	Yes	No	No
5 CCR 1003-1, 40 CFR 141, <i>Safe Drinking Water Act, Colorado Primary Drinking Water Regulations</i>	NA	NA	NA
40 CFR 141, <i>Maximum Contaminant Level Goals</i>	NA	NA	NA
<i>Solid Waste Disposal Act, Colorado Hazardous Waste Act</i>	Yes	No	No
<i>Toxic Substance Control Act</i>			
15 USC 2601 <i>et seq</i>			
761 40/761 45, <i>Labeling</i>	Yes	No	No
761 65, <i>Except for Time Limit</i>	Yes	No	No
761 66, <i>Time Limit</i>	NA	NA	NA
761 79, <i>Decontamination</i>	Yes	No	No
761 125, <i>PCB Spill Cleanup</i>	Yes	No	No

## **5.2 ACTION-SPECIFIC REQUIREMENTS AND CONSIDERATIONS**

The technology based standards and requirements are utilized when ever applicable or relevant and appropriate, to that specific action, to eliminate as many problem areas as possible. The project will encounter conditions regulated by the chemical specific restrictions identified in section 5.2.1 and Attachment B. The restrictions will be incorporated in this project planning effort and will be assured by following applicable RFETS procedures.

### **5.2.1 Resource Conservation and Recovery Act (RCRA)**

Requirements governing the identification and characterization of hazardous wastes are defined in RCRA and are applicable to the requirements in the Colorado Hazardous Waste Act (CHWA) (6 CCR 1007-3, 261). The implementation of generator standards (6 CCR 1007-3 262) will be completed utilizing the Waste Stream Residue Identification Characterization (WSRIC) program and Waste Management Procedures. A list of specific RCRA ARARs associated with this project is included in Attachment B.

The requirements governing Temporary Units (TUs) are applicable to tanks and containers used for storage and treatment of hazardous remediation wastes generated in conjunction with the D&D of B123. (See 40 CFR §264.553). All tanks and containers will be compatible with the waste and in good condition. Incompatible wastes, if encountered, will be segregated within the units. Secondary containment will be provided, where practicable, when liquid wastes are stored or treated in tanks or containers. Waste characterization will be provided, as appropriate, in accordance with the SAP. Inspections, at a minimum of once a week, will be provided during operations in accordance with the Waste Management Plan. Training for individuals generating and handling hazardous remediation waste will be implemented using the framework identified in the RFETS Part B permit. To close a TU, waste and contaminated soils will be removed, as appropriate.

Remediation wastewaters generated during D&D will be transferred to the Consolidated Water Treatment Facility (CWTF, Building 891) for treatment. Remediation wastewaters that contain listed RCRA hazardous wastes or exhibit a RCRA characteristic will not be subject to compliance with RCRA hazardous waste codes and would not be applicable or relevant and appropriate because the wastewaters are CERCLA remediation wastes being treated in a CERCLA treatment unit. The CWTF will treat the remediation wastewaters to meet applicable surface water quality standards under a National Pollution Discharge Elimination System (NPDES) ARARs framework.

Waste generated at B891 as the result of treatment of a listed remediation wastewater will be assigned the corresponding listed waste code. All wastes generated at B891 will be evaluated for hazardous characteristics.

### **5.2.2 Toxic Substance Control Act (TSCA)**

The Toxic Substance Control Act (TSCA) defines criteria to guide management and disposal of PCBs. Fluorescent light ballast are the only potential source of PCBs identified in Building 123. Light ballast marked "No PCBs" or "PCB Free" will be managed as non-hazardous solid waste and disposed at a sanitary landfill. Ballast marked "PCBs" or not marked and not leaking will be packaged for disposal at a TSCA-permitted facility. Leaking PCB light ballast and unmarked light ballast will be managed as fully-regulated PCB Articles. A list of specific TSCA ARARs

associated with this project is included in Attachment B

### **5.2.3 Colorado Low Level Waste Program**

The State of Colorado Low Level Waste Program (6 CCR 1007-14) is incorporated in Waste Management Operation procedures (1100-1104)

## **5.3 LOCATION-SPECIFIC REQUIREMENTS AND CONSIDERATIONS**

No location specific requirements are associated with the scope of work

## **5.4 TO-BE-CONSIDERED (TBC)**

TBCs are used in determining the necessary level of cleanup for the protection of human health and the environment. The March 8, 1990 preamble to the final National Contingency Plan (NCP) rule (55 FR 8746) indicates that the use of TBCs is discretionary rather than mandatory, however, incorporation of TBCs is recommended and identified in this document.

## **6.0 IMPLEMENTATION SCHEDULE**

The Level 1 schedule for this project is included as Attachment C. To meet requirements of the PAM process, the project will be completed in less than six months from commencement of contractor mobilization.

## **7.0 REFERENCES**

DOE 1992a, *Final Phase I RFI/RI Work Plan for Operable Unit 9, Original Process Waste Lines*, March

DOE 1992b, *Final Phase I RFI/RI Work Plan for Operable Unit 13, 100 Area*, October

DOE 1992c, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO

DOE 1994, *Final Phase I RFI/RI Work Plan for Operable Unit 9, Technical Memorandum No 1, Volume IIA-Pipelines*, November

DOE 1996a, *Final Rocky Flats Cleanup Agreement*, Rocky Flats Environmental Technology Site, July

DOE 1996b, *RFETS Ten Year Plan*

DOE 1997, *Part IX Personnel Training of the Rocky Flats Environmental Technology Site RCRA Permit*

EPA 1994, *Guidance for the Data Quality Objective Process*, EPA, QA/G-4

NRC 1997, *NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of*

PROPOSED ACTION MEMORANDUM  
FOR THE DECOMMISSIONING OF BUILDING 123

RF/RMRS-97-012  
Rev 0, Page 29 of 29  
Date Effective 8/25/97

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*License Termination, Draft*

## **APPENDIX A**

### **RCRA APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)**

**ATTACHMENT 1-1**

**DRAFT INTERAGENCY MULTI-AGENCY RADIOLOGICAL SITE SURVEY  
AND SITE INVESTIGATION MANUAL (MARSSIM) AND  
DRAFT NUCLEAR REGULATORY COMMISSION (NRC) NUREG/CR-5849,  
MANUAL FOR CONDUCTING RADIOLOGICAL SURVEYS IN SUPPORT  
OF LICENSE TERMINATION**

**ATTACHMENT 2-1**

**LEVEL 1 SCHEDULE FOR THE DECONTAMINATION AND  
DECOMMISSIONING OF  
BUILDING 123**

RF/RMRS-97-012  
Rev 0, Page 2-1 of 2-1  
Date Effective, 8/25/97

Activity Description	Orig Dur	Early Start	Early Finish	Actual Start	Actual Finish
Life Cycle Activities					
Building Characterization	38	27MAR97	23MAY97	27MAR97	23MAY97
Regulatory Approvals	53	08APR97A	30JUN97A	08APR97	30JUN97
K H / DOE PAM Review	25	22APR97A	21MAY97	22APR97	21MAY97
Respond to K H / DOE Comments	4	05MAY97A	08MAY97	05MAY97	08MAY97
Tenant Relocation	56	07MAY97A	01AUG97	07MAY97	01AUG97
Submit PAM to CDPHE	0		22MAY97		22MAY97
CDPHE PAM Review / Comment	19	02JUN97A	03JUL97A	02JUN97	03JUL97
Respond to CDPHE Comments	32	07JUL97A	14JUL97A	07JUL97	14JUL97
Finalize PAM	32	14JUL97A	02SEP97		14JUL97
PAM Signed	0		02SEP97		02SEP97
Demolition Contract Award	0		10OCT97		10OCT97
Asbestos Abatement	19	24OCT97*	24NOV97		24NOV97
Building Demolition	16	22DEC97	15JAN98		15JAN98
IHSS Characterization	12	02FEB98*	17FEB98		17FEB98
IHSS Remediation	27	06MAR98*	13APR98		13APR98
Closure	23	13APR98*	13MAY98		13MAY98

Project Start: 20MAR97

Project Finish: 16JAN98

Date Date: 21AUG97

Run Date: 21AUG97

Early Bar

Progress Bar

Critical Activity

20MAR97

16JAN98

21AUG97

21AUG97

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**ATTACHMENT 3-1**  
**COMMENTS TO PAM**



## INTEROFFICE MEMORANDUM

TO: Kent Dorr, K-H Project Management, Bldg T130F, X6034

FROM: Doug Steffen, E/C/D/F project Management, Bldg T130F, X2164

DATE: August 21, 1997

SUBJECT: BUILDING 123 D&D PROPOSED ACTION MEMORANDUM RESPONSE TO  
TELEPHONE COMMENTS RECEIVED FROM CDPHE 8/20/98

The comments cited in this document are paraphrased based on a telephone discussion between Chris Gilbreath and Doug Steffen

- 1 *Please include in the PAM a listing of the radiological classification for the rooms in Building 123*

### RESPONSE

Classification of the rooms and areas in Building 123 has been determined based on radiological data collected as part of the reconnaissance-level characterization effort. This initial classification may change as additional in-process data are collected. The classification methodology is discussed in Section 3.1.2.1 of the PAM, which states "Areas that have been identified as Class 1 are Room 105 (ceiling not impacted) and the process waste sumps in Rooms 156, 157, and 158. Areas identified as Class 2 are 106, 109, 109A, 109B, and 123 (floors only), and Rooms 103, 103A, 111, 112, 124, 125, 127, 156, and 157 (ceilings not impacted). All remaining rooms and areas in Building 123 have been identified as Class 3. Buildings 113 and 114 are classified as non-impacted areas. Building 123S will be moved for reuse and was not classified."

- 2 *Please update the project schedule to show when the Asbestos Abatement Plan and the Demolition Plan will be prepared*

### RESPONSE

The project schedule has been updated to show these activities and is included in Attachment 2. This schedule is provided in the Project Execution Plan. The Asbestos Abatement Plan will be completed October 20, 1997. The Demolition Plan will be completed November 3.

- 3 *Please provide a discussion in the PAM describing the phases of demolition*

### RESPONSE

The following discussion has been inserted into Section 3.1.3.1 of the PAM: "Demolition activities will be conducted in two primary phases. Initially, the hoods, laboratory counters, cabinets and radiologically contaminated floor tile will be removed from the laboratories. Removal will allow radiological surveys to be conducted on the walls of the laboratories before asbestos abatement. Hood ductwork and scrubbers will also be removed during this phase. Removal of the ductwork and scrubbers will eliminate a potential hazard (disruption of crystallized perchloric acid, see Section 2.4.5), prior to demolition of the structure. All building utilities will also be deactivated during this phase. Following removal of all asbestos from the building, a final radiological survey of the building will be performed to verify that all building rubble can be disposed

in an off-site landfill. The second phase of demolition involves removal of the building superstructure, ”

Cc  
Kirk Hilbelink  
Project File



TO Kent Dorr, K-H Project Management, Building T130F, X6034

FROM Doug Steffen, RMRS E/C/D Project Management, Bldg T130F, X2164

DATE August 7, 1997

SUBJECT **Building 123 Proposed Action Memorandum (PAM):  
Response to DOE and CDPHE Comments**

Below are the proposed responses to comments received from DOE and CDPHE on the Building 123 PAM. The PAM was modified in accordance with the responses provided below. Text has been added to or deleted from the document since the last revision, thus requiring changes in page numbers and topic heading and subheading numbers. In such cases, the current heading numbers have been included in the response. Please review these responses and provide comments such that any modifications can be added to the PAM.

**Originator: Bill Fitch, DOE**

*1 Section 2.2.1*

*Last Para states that "radiological surveys, sampling and analysis will be done for the presence of beryllium, asbestos, lead, PCBs, and other potential contaminants." The next sentence states "Results are summarized in Section 2.3." First sentence was in the draft and the second sentence was added for the final. Note the inconsistency. No action is required.*

**RESPONSE**

Section 2.4 was changed to state the following: "Pursuant to RFCA criteria, a Reconnaissance-Level Characterization Survey (RCLS) was conducted to identify any hazardous and radioactive contaminants in the Building 123 Cluster. The survey identified no significant hazards associated with Buildings 113, 114 nor 123S, and indicated that the majority of Building 123 is considered to be "unaffected" (low potential for hazardous or radiological contamination) based on operational and process history. However, the following rooms in Building 123 were previously, or currently, posted as Radiation Control Areas (RCAs) or Radioactive Material Management Areas (RMMAs) and are therefore considered to be "affected" (potential for low-level contamination) and will require a more detailed survey prior to decommissioning: Rooms 103A, 105, 112, 123, 124, 125, 126, 127, 135, 149, 155A, 156, 157, 158, and 163."

- 2 *Page 13, Figure 2-5 is really a table*

RESPONSE

Figure 2-5 was changed to Table 2-4 and is now indicated on Page 15

- 3 *Pleased to see how the contaminant information is summarized and presented Is there some way to summarize the magnitude or concentration? Would like a copy of the "Asbestos Characterization Report" and the "Addendum to Building Inspection (April 1997)"*

RESPONSE

Copy of document was provided to reviewer

- 4 *Page 15, Section 2 3 4, RCRA Units*

*(I) assume that there are no RCRA Units within the building (I know Unit 40 is everywhere)*

RESPONSE

The following comprises Section 2 3 1 "The Building 123 area encompasses a portion of RCRA Unit 40, the plant-wide process waste system, a network of tanks and underground and overhead pipelines constructed to transport and temporarily store process wastes from point of origin to on-site treatment and discharge points RCRA Unit 40 includes all overhead and underground and process waste lines in and around Building 123 No other RCRA unit exists in the Building 123 area "

- 5 *Page 17, Section 3 2 1, 2nd Para*

*Isn't the Project Executive Plan a specific planning document? Shouldn't it be listed here?*

RESPONSE

The PEP was not added to the list in Section 3 1 1, since the document has yet to be approved

- 6 *Page 21, Section 3*

*Stated that a Building 123 Decommissioning Project Health and Safety Plan (Rev 0) has been developed Do we have something to send out to a member of the public who requests one? Would like a copy*

RESPONSE

Specific citation of the document was changed to general citation in Section 3 1 1, as this document has yet to be approved and has not been released for public comment A copy of the document was provided to the reviewer

- 7 *In same paragraph*

*Stated that an Activity Hazard Analyses will be prepared Requests a copy of document*

RESPONSE

A copy of the document will be provided to the reviewer once it has been prepared

8 Page 23, Section 3 5

*Waste management activities for the project are described in Building 123 Decommissioning Project Waste Management Plan Rev 0 (May 1997) Requests a copy of plan*

RESPONSE

Specific citation of the document was changed to general citation in Section 3 1 1, as this document has yet to be approved A copy of the document was provided to the reviewer

9 Section 4 0, Environmental Impacts

*Section is weak. I hope the stakeholders who are concerned about canceling the Sitewide EIS don't attack this section Will ask the RFFO NEPA Officer to look at this and make suggestions*

RESPONSE

NEPA section (4 0 "Environmental Impacts) has been revised to include the Proposed Action and Alternatives, including an impact analysis of the Proposed Action

10 Page 24, Section 4

*Reconnaissance Level Characterization Report is finished Requests a copy of report*

RESPONSE

Specific citation of the document was changed to general citation in Section 3 1 1, as this document has yet to be approved A copy of the document was provided to the reviewer

11 Section 4, Last paragraph

*Paragraph is weak The Programmatic Agreement among the Rocky Flats Field Office, the Colorado State Historic Preservation Officer and the Advisory Council on Historic Preservation concerning Historic and Cultural Property at the Rocky Flats Environmental Technology Site has been submitted for signing Checking to see if it is in place Building 123 was identified as a Potentially Historic Structure and may be subject to requirements for recordation or preservation Documentation was prepared and submitted for Building 123 on April 30, 1997 Expect this documentation to be adequate and anticipate that the SHPO will concur in our decision to demolish B123*

RESPONSE

The section (4 2 7) was revised to indicate that the agreement has been approved Streetscape photographs will be taken of the building before it is to be demolished

12 Guard Post 113

*Post was identified among those guard posts which may be subject to requirements for recordation or preservation, and documentation was prepared and submitted for the guard house complex on April 30 Suggest we strengthen this language in succeeding documents to strongly state we are complying and are meeting the requirements for documentation*

**RESPONSE**

The following was added to Section 4 2 7 "Building 113 is a guard post of the type denoted for documentation as a historical building The documentation is under preparation and scheduled to be completed by September 30, 1997 "

*13 Page 25, Section 5 0, First Paragraph, Line 3*

*States that "ARARs are identified in the draft DPP" They used to be but aren't anymore*

**RESPONSE**

Reference to the DPP document was removed from the entire document, since it has yet to be approved

*14 Section 6 0*

*States that Figure 6-1 is attached but it isn't Requests copy of figure*

**RESPONSE**

Figure 6-1 was apparently not attached to reviewers copy The figure, *Level 1 Schedule for the Decommissioning and Demolition of Building 123*, was changed to Attachment C in the third revision

*15 Section 2 1 1 , RCRA Unit 40*

*"Closure of RCRA Unit 40 will be conducted in accordance with the Site's Part B RCRA permit " Unit 40 is not a permitted unit Partial closure of this interim status unit requires submittal and approval of a closure plan in accordance with Part 265, Subpart G of the Colorado Hazardous Waste Regulations (CHWR) which includes a 30-day public comment period*

**RESPONSE**

This reference was removed from the text A closure plan is currently under preparation as indicated in text in Sections 2 3 1 and 3 1 3 3

**Originator: Office of Chief Counsel, DOE**

*1 Cover letter*

*A Proposed Action Memorandum should not go to the reading rooms before DOE approval*

**RESPONSE**

The PAM was submitted for public comment before DOE approval Future PAM documents will be submitted to DOE approval prior to submittal to the public

*2 Section 2 1, Line 3*

*The reference should be to the Site's Life Cycle Baseline rather than the Ten Year Plan*

**RESPONSE**

Text was changed in Section 1 0 to indicate the following "The effort will be managed as a non-time critical interim remedial action under the Comprehensive Environmental

Response, Compensation, and Liability Act (CERCLA), with respect to the RFETS Life Cycle Baseline ”

3 Section 3 0, Line 1

*It is not correct to reference the draft DPP The flow chart from the DPP could be included in the PAM as the process to be used in this project*

RESPONSE

All references to the DPP were removed from the document The flow chart was not included in the document

4 Section 3 0, Line 5

*It is not correct to say that “plans will be prepared and approved by RFETS” In RFETS prepares and submits and the LRA approves*

RESPONSE

The text was changed in Section 3 0 to indicate the following “All compliance documentation and project plans will be prepared and approved by RFETS Decommissioning and Demolition Management under a Project Execution Plan to ensure that decommissioning efforts are conducted in a safe and compliant manner”

5 Section 3, Line 9

*Suggest moving this sentence, which begins “Once the building is ready for decommissioning ” Up before the sentence which begins “As part of ”*

RESPONSE

The entire section (3 0) was revised The two sentences were combined to state “All building utilities and associated facility safety systems will be disconnected prior to commencement of building demolition ”

6 Section 3 0, Line 13

*Suggest using another word instead of “following” Such as “Remediation of contaminated soil will be completed as indicated by the results of the analyses ”*

RESPONSE

The sentence in Section 3 0 at the end of the paragraph was expanded to state the following “Underground pipelines will be managed with respect to soil sample analyses results Soil remediation, if necessary, will be conducted with respect to RFCA Action Levels in a manner that is protective of human health and the environment ”

7 Section 3 1, Line 1, 1st Word

*Suggest changing “The” to “A”*

RESPONSE

The sentence in Section 3 0 was revised to state “The primary decommissioning objectives will be accomplished according to an integrated scope, schedule and cost control system ”



8 Section 3 2 1, Line 6

*The other regulatory activities should list the requirements of historical preservation act and reference the site programmatic consultation w/SHPO and US National Park Service*

RESPONSE

Section 4 2 7 addresses this concern and states the following "The programmatic agreement between the DOE Rocky Flats Field Office, the Colorado SHPO, and the Advisory Council on Historic Preservation has been approved Building 113 is a guard post of the type denoted for documentation as a historical building The documentation is under preparation and scheduled to be completed by September 30, 1997 and Arrangements are being made to take streetscape photographs of Building 123 which has been designated as a Potentially Historic Structure The terms of the agreement will be met before initiation of decommissioning activities " The agreement is also referenced in Section 3 1 1

9 Section 3 2 1, 2nd Para , Line 1

*The Programmatic Consultation with the SHPO is a planning document which should be referenced*

RESPONSE

See above response

10 Same Reference

*The Reconnaissance Level Characterization Report should be an appendix to this PAM as should the other plans cited (unless they are available in the reading rooms already)*

RESPONSE

None of the supporting documents will be included as Appendices However, Section 3 1 1 was revised to state that the documents "will also be available to the general public upon request "

11 Section 3 2 2, Line 1

*Suggest changing "governed" to "conducted"*

RESPONSE

The entire sentence was revised in Section 3 1 2 1 to state "Characterization activities associated with the decommissioning effort include survey of interior building surfaces "

12 Section 3 2 2, Line 6

*The Sampling and Analysis Plan should be an appendix to this PAM*

RESPONSE

None of the supporting documents will be included as Appendices However, Section 3 1 1 was revised to state that the documents "will also be available to the general public upon request "

13 Section 3 2 2, 2nd Para , Line 3

*The draft MARSSIM should be an appendix to this PAM available in the reading rooms Same thing for draft NRC Manual*

RESPONSE

The MARSSIM and NRC NUREG documents were added as Appendix A

14 Page 20, Unconditional Radiological Release Criteria, Line 1

*The clause "In accordance with the RFCA " Should have a specific cite*

RESPONSE

The sentence in the last paragraph of Section 3 1 2 1 was revised to state "All contaminated building surfaces, equipment and demolition materials will be managed according to waste type, with respect to Attachment 9 0 of RFCA "

15 Same Reference, Line 5

*"The RFETS Building Rad Cleanup Std " Suggest putting this sentence first, then the current lead sentence*

RESPONSE

The referenced sentence is included in the following revised paragraph at the end of Section 3 1 2 1

"All contaminated building surfaces, equipment and demolition materials will be managed according to waste type, with respect to Attachment 9 0 of RFCA Following decontamination activities, the RFETS Building Radiation Cleanup Standard (BRCS) will be utilized to determine if residual radioactive constituents contained in remaining equipment and demolition debris is compliant with RFCA guidelines and appropriate as-low-as-reasonably-achievable (ALARA) considerations The BRCS is currently under development in coordination with the EPA, CDPHE, and DOE Until the BRCS is approved, more conservative criteria defined in DOE Order 5400 5 and associated RFETS radiation protection procedures will be used to determine if building surfaces, equipment and demolition debris are acceptable for unconditional release "

16 Same Reference, 3rd Para , Line 3

*The reference to "When 10 CFR Part 834 is approved " needs a lot more explanation or in alternative state that when other requirements are promulgated (established) they will be met also*

RESPONSE

The reference was deleted from the text because the regulation has yet to be approved

17 Section 3 2 3, Line 1

*Replace "Prior to decommissioning" with "As part of the decommissioning process"*

RESPONSE

The first sentence (in Section 3 1 3 1) was revised to state "As part of the decommissioning process, all utilities and electrified systems will be disconnected and capped"

18 Section 3 2 3, Line 2

*"The scope of building decommissioning also includes "*

RESPONSE

The second sentence (in Section 3 1 3 1) was revised to state "The scope of the building decommissioning effort also includes removal of all interior piping, ventilation and above-slab waste systems "

19 Section 3 2 3, Line 8

*Suggest rewrite to say "The debris will be disposed offsite at properly licensed facilities depending of the type of waste stream created during decommissioning Low level rad wastes is planned to be disposed of at \_\_\_\_\_ Sanitary (solid) waste is planned to be disposed of at \_\_\_\_\_*

RESPONSE

Section 3 1 3 1 has been revised to indicate references to specific disposal sites, as stated below

"The building will be surveyed for radiological contamination prior to decommissioning and building rubble will be segregated and disposed at properly licensed facilities, depending on the type of waste stream created during decommissioning activities Friable asbestos will be disposed at Kettelman, California, non-friable asbestos and sanitary waste will be disposed at USA Waste, Erie, Colorado, low-level radioactive waste (LLW) will be disposed at Nevada Test Site (NTS), Radioactive ACM will be disposed at Hanford Site, Washington, and low-level mixed waste (LLM) will be stored temporarily on site until an appropriate off-site facility has been identified "

20 General question

*Has DOE agreed that disposal will be offsite?*

RESPONSE

A final radiation survey will be performed on building surfaces prior to demolition The data will be made available to DOE before demolition In addition, DOE will have the opportunity to conduct an independent survey of the building The building rubble will not be released offsite without DOE's concurrence

21 Page 21, Section 3 2 4, Line 2

*Need to cite Attachment No 6 after the reference "defined in the RFCA "*

RESPONSE

The first sentence in Section 3 1 3 2 was revised to state "Remedial actions will be contingent upon compliance of sample analyses results with Tier II , 'action level' criteria defined in **Appendix 6** of the RFCA "

22 Section 3 5, 3rd Paragraph

*Eliminate 1st sentence entirely*

RESPONSE

The entire section (3 1 3) has been revised and all references to subcontractor involvement have been removed

23 Section 3 5, 4th Paragraph

*Rewrite entirely to take out all reference to subcontractor and RMRS Suggest "The solid waste will be packaged according to the criteria appropriate to its waste type and transported to offsite licensed disposal facilities for disposal All packaging and shipping regulations will be met"*

RESPONSE

All references to subcontractor involvement and RMRS have been removed Section 3 4 2 has been revised to state the following

"Process knowledge and relative operating history will be used to manage contaminated areas apart from unaffected areas Contaminated material will be segregated, categorized, and packaged according to the specifications for disposal in permitted hazardous waste, LLW, or LLM facilities Waste characterization data and packaging requirements for LLW will meet the procedures and policies for managing LLW as outlined in the RFETS Low-Level Waste Management Plan (Low Level Waste Management Plan 44-RWP /EWQA - 0014, Rev 1, 1996) Waste Operations will designate temporary storage locations for LLW, LLM, or hazardous waste, as conditions warrant "

24 Page 24, Section 3 5, Last Paragraph

*Need to use PU&D as words before using acronym*

RESPONSE

The words "Property Utilization and Disposal" were added to Section 3 4 1 "Non-Regulated Waste"

25 Section 4 0

*A whole lot of problems with the NEPA Section--- too numerous to list*

RESPONSE

NEPA section (4 0 "Environmental Impacts) has been revised to include the Proposed Action and Alternatives, including an impact analysis of the Proposed Action

26 General Comment

*The PAM generally fails to be legally sufficient for two main reasons*

*a First, because the PAM's specific reliance on the draft Decommissioning Program Plan (DPP), a document which does not yet even exist in a draft form Until the DPP is approved, it is inappropriate to incorporate it by reference into other Rocky Flats Cleanup Agreement (RFCA) decision documents*

*b Second, the PAM fails to adequately incorporate National Environmental Policy Act values This is partly because the PAM defers to the DPP On this matter as well as deferring to the Site's Cumulative Impacts Document which is yet another document that has not been officially released to the public As a RFCA decision document, this PAM must include, at a minimum, thoughtful consideration of alternatives to the proposed action This includes the "no Action" alternative a discussion of the potential for irretrievable/irreversible commitment of natural resources*

## RESPONSES

- a All references to the DPP have been removed from the document
- b NEPA section (4 0 "Environmental Impacts) has been revised to include the Proposed Action and Alternatives, including an impact analysis of the Proposed Action

### 27 General

*Kaiser-Hill's cover memo transmitting this draft PAM to your office indicates that this draft PAM has previously been submitted to the RFCA regulators for comment and was to be released to the reading rooms for public comment starting May 23, 1997. Unfortunately, this office was provided its first opportunity to review this document when it was unofficially provided a copy June 4, 1997. In the future, this office should be given the opportunity to participate in the review process of PAMs, including those concerning decommissioning of buildings, much earlier in the consultative process.*

## RESPONSE

Attempts will be made to ensure that all documents in review will be submitted to the appropriate agencies on a more timely basis

### 28 General

*At this time, this PAM is not legally sufficient for release to the public reading rooms for public comment. This PAM should be resubmitted for legal review once the comments provided on the enclosed copy of the draft PAM have been addressed.*

## RESPONSE

The PAM has already been submitted for public comment. The public response period ended July 3, at which time no public comments had been received.

## Originator. Chris Gilbreath, CDPHE-HAZMAT

### 1 Section 2 1 2, IHSS 148

*The sampling and analysis plan (SAP) for IHSS 148 must be submitted and approved by the Division prior to implementation. Public comment is not required, therefore, the final PAM should describe the approval mechanism for the sampling, analysis and remediation of both IHSS 148 and UBC 123 (e.g., the SAP shall be submitted to the Division at least 30 days prior to implementation). In the event that the SAP has not been completed, a compliance schedule which identifies the date for submittal of the SAP to the Division should be added to the final PAM.*

## RESPONSE

The following sentence was added to Section 3 0 indicating the approval mechanism for the SAP: "The SAP will be submitted to CDPHE for approval at least 45 days prior to implementation."

### 2 Section 2 2 4, Building 123S

*"The facility has been closed for approximately one year." Has the building been certified RCRA clean closed, non-operational or shutdown? Clarify the term "closed"*

RESPONSE

The following statement was added to Section 2 2 4 The facility was formally as part of the RCRA process in 1996 Closure followed 6 CCR 1007-3, 262 34(a) and 6 CCR 1007-3, 265 111 and 6 CCR 1007-3, 265 114 requirements

3 Section 2 3 1, Asbestos

*Identify the State of Colorado regulation which requires the submittal of either a Demolition Notification form or an Asbestos Abatement Notification form*

RESPONSE

The following statement was added to the second paragraph of Section 2 4 1 "A permit is required for asbestos abatement operations in accordance with Regulation 8, Control of Hazardous Air Pollutants, Part B, Section 3, (1)(a)(i); Notification will be made to the State of Colorado in accordance with Regulation 8, Part B, Section 3, (1)(a)(iii) A separate form for demolition is required for demolition in accordance with Regulation 8, Part B, Section 3, (3)(b)(i, ii, iii) "

4 Section 2 3 2, Beryllium

*This section reads, "No samples identified the presence of beryllium " The Reconnaissance Level Characterization Report, however, states "No samples identified the presence of beryllium above the RFETS site housekeeping level of 25 ug/ft2 Define the term "Site housekeeping level"*

RESPONSE

The section in 2 4 2 was revised to state the following "All results were below the RFETS site housekeeping level of 25 µg/ft<sup>2</sup>, a standard developed by the Atomic Energy Commission in approximately 1949 and adopted and used by RFETS since the 1960's " We have been unable to uncover any more history regarding this level than is contained in this statement This level has been incorporated into the Rocky Flats Health and Safety Practices Manual, Rev 0, 1-15310-HSP-13 04

5 Section 2 3 4, RCRA

*Hazardous Waste in SAAs - For previously generated hazardous waste, characterization should have already been completed using either process knowledge or sampling and analysis results Hasn't the waste already been containerized and labeled? Revise the paragraph accordingly*

RESPONSE

The paragraph in Section 2 4 4 was reworded to state the following

Satellite Accumulation Areas (SAAs) were established in Rooms 103A, 124, 125, 127, and 156 to ensure proper storage of RCRA hazardous wastes near the point of generation The SAAs are no longer active The chemicals have been properly containerized, labeled and dispositioned

6 Section 2 3 5, Perchloric Acid

*As identified in the PAM, crystallized perchloric acid may be shock sensitive and represent a hazard As a result, ensuring safe and proper decontamination of the five*

*hoods is critical Identify the procedure(s), training and personnel to be used to flush and rinse potentially shock sensitive crystals in the hoods*

#### RESPONSE

The following was added to Section 2 4 5 "Site Health and Safety have reviewed requirements for decontamination of perchloric acid hoods The steps that outlined in the requirements include interviews with laboratory personnel, walkdowns, necessary repairs, and washdowns of all hoods and associated ductwork, and dismantlement of ductwork into easily managed sections The requirements also define proper segregation and disposal of all solid duct material " The guideline for removal of the perchloric acid hoods is attached to this responsiveness summary

#### 7 Section 2 3 9, Metals

*"All paints indicated detectable levels of one or more of the metals (lead, chromium, cadmium, and arsenic) " Are the levels of metals found in the paint greater than Toxicity Characteristic Leaching Procedure levels? How will the paint be managed?"*

#### RESPONSE

Results will be reviewed according to TCLP criteria Painted surfaces will be managed as construction debris The following was added to Section 2 4 9 "All paints indicated detectable levels of one or more of the metals Samples will be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) Should the TCLP analysis indicate the painted surfaces are leachable for heavy metals, they will be managed as hazardous waste Otherwise, painted surfaces of construction materials will be managed as standard construction debris "

#### 8 Section 3 22, Characterization

*"Non-Impacted Areas are areas that have no potential for residual radiological contamination " As previously described in Section 2 2 1 "Building 123 was one of the first ten buildings constructed at Rocky Flats The building has always been used as an analytical laboratory and a dosimetry facility " Based on the history and age of the building, it is not technically defensible to say that there are areas in Building 123 that have no potential for residual radiological contamination*

#### RESPONSE

The subject statement was provided as a definition for non-impacted areas The actual classification of each room or area in Building 123 will be made by Radiological Engineering based on characterization data and historical use

#### 9 Section 3 22, Characterization

*NUREG 5849 proposes a somewhat different approach which appears to be appropriate for Building 123 It states, "Scans of unaffected areas should cover a minimum of 10% of the floor and lower wall surface area At least 30 randomly selected measurement locations or an average measurement of 1 per 50 m2 of building surface area, whichever is greater, for total and removable activity, should be performed for each survey unit These locations should be performed for each survey unit These locations should include all building surfaces Identification of activity levels in excess of 25% of the guideline, either by scans or measurements, will require reclassification of the area to the "affected" category " Will the areas considered non-radioactively contaminated be classified as "non-impacted areas" or as Class 3 impacted areas?"*

RESPONSE

The following statement was added to Section 3 1 2 "Areas considered to be non-radioactive will be classified as Class 3 impacted areas " Also, "unaffected" and "Class 3 Impacted" areas are essentially the same

10 Section 3 2 2

*Soil sampling of the surrounding process waste lines and the IHSS 148 areas should include sampling for nitrates*

RESPONSE

Nitrates were added to the analyte list in Section 3 1 2 2

11 Section 3 5, Waste Management

*"Working under the direction of RMRS, the qualified and trained subcontractor will also load all hazardous, LLW, and LLM waste into approved containers and make certain that all regulatory requirements are met " Define the training requirements for the subcontractor(s) generating and managing hazardous and mixed wastes*

RESPONSE

The following statement was incorporated into Section 3 4 "Waste management training requirements are outlined in *Part IX Personnel Training of the Rocky Flats Environmental Technology Site RCRA Permit* (DOE 1997) The training matrix defined in Part IX details the training requirements for all personnel managing hazardous waste Although the document is part of a permit, all RCRA training requirements of 6 CCR 1007-3, 265 16 are met "

12 Section 5 1 1, Airborne

*"Fugitive dust emissions are appropriate for the demolition " The statement should read fugitive **emission** controls*

RESPONSE

The sentence was reworded as follows "Fugitive dust emissions controls are appropriate and relevant for the demolition "

13 Section 5 1 1, Airborne

*Demolition activities mentioned are subject to the AQCC's Regulation No 1, Section III D 2 h , which does not require a permit, however an abatement plan must be in place and meet the requirements listed in the regulation*

RESPONSE

An asbestos abatement plan will be prepared by the asbestos contractor and will be reviewed, if necessary, by RMRS The abatement contractor is not required by the regulations to submit the abatement plan to CDPHE

14 Section 5 2

*This section should clearly specify whether the identified regulatory requirements are applicable or whether they are merely relevant and appropriate This is an important distinction because a requirement determined to be applicable must be met in its*



*entirety, while a requirement that is relevant and appropriate needs to be met considering site conditions and protection of human health and the environment*

RESPONSE

An attachment (B) indicating all ARARs associated with the project was added to the document

15 Section 5 2 1, RCRA

*This section does not include all of the ARARs associated with RCRA. For example, if batteries will be managed as universal waste then the requirements of Part 279 of the CHWR are applicable requirements. In addition, the land disposal restriction (LDR) treatment standards of Part 268 are applicable to any hazardous waste removed from the area of contamination and to any hazardous waste that is excavated from the area of contamination, managed within another unit, and returned to the area of contamination. Finally, the closure requirements of Part 265 are applicable to areas associated with RCRA Unit 40 if hazardous waste was managed in that unit after November 8, 1980. If hazardous waste was not managed after that date, then those requirements may still be relevant and appropriate.*

RESPONSE

An attachment (B) indicating all ARARs associated with the project was added to the document

16 Section 5 2 1, RCRA

*This section states that fluorescent lights will be managed as universal waste. However, the definition of universal waste does not include fluorescent lights, at this time.*

RESPONSE

Correct. 40 CFR 273, *Universal Waste Management* applies to batteries (except lead-acid batteries managed under 40 CFR 266) pesticides, and mercury switches. Therefore, reference to the Universal Waste Rule was deleted.

17 General Comment

*The Building 123 PAM does not clearly identify anticipated monitoring activities throughout the decommissioning process. The PAM and the Building 123 Reconnaissance Level Characterization Report identify actual and potential radiological and chemical contamination within the building and surrounding soils. The PAM, however, does not describe necessary air monitoring during decontamination and demolition of the building. In light of the recent problems the Site experienced with the remediation of the T3 and T4 trenches, air should be continuously monitored for radionuclides and beryllium, at a minimum. The PAM doesn't necessarily need to completely describe and define monitoring activities but at a minimum, the PAM must reference the appropriate monitoring procedure(s) for all decontamination and demolition activities to be conducted. This monitoring plan must be available upon request prior to demolition activities to be conducted. This monitoring plan must be available upon request prior to implementation of proposed decommissioning activities. In addition, the SAP for IHSS 48 and UBC 123 should clearly describe any necessary air and water monitoring requirements.*

## RESPONSE

Section 3 2 2, *Ambient Air Monitoring* was added to the document to address air monitoring for the project. In addition, the project intends to take the following actions. In response to a possible need for remediation of soil beneath the building slab with respect to soil sample analysis results, the project will operate a minimum of two low volume particulate samplers in the vicinity of the project site. One sampler will be located in the predominant upwind direction, and at least one sampler will be placed in the prevailing downwind direction. Specific sampler locations will be selected based on vehicular and pedestrian traffic patterns. Air Quality Management will be consulted to select sampler locations. The samplers will be operated continuously during active decommissioning activities and will be changed weekly.

### 18 General Comment

*It seems premature to submit a PAM for the under-building contamination before necessary characterization has been/can be done. This lack of characterization leads to a lack of the detail that is required in a decision document like a PAM. Section 3 2 4 would typically be expanded to include detailed remediation methods. Once the SAP has been completed, a Remediation Plan which identifies the remediation activities to be utilized shall be submitted to the Division prior to implementation. Statements that the remediation "will be done according to established procedure" and that "several locations have undergone similar remediation" seem to be used to excuse the lack of detail. This section should not use vague terms like "could", but should describe or reference specific procedures.*

## RESPONSE

Remediation options for soil and pipelines were added to the document as Sections 3 1 3 2 and 3 1 3 3. RCRA Unit 40 will also be addressed in a separate RCRA closure plan.

### 19 General Comment

*Other specifics that should be included, if applicable, are*

- *air monitoring/air pollution control permits,*
- *other specific requirements or applicable regulations (cited),*
- *specific cleanup target levels/performance standards, and*
- *Radiological Work Permit should be mentioned in Section 5 1 2*

## RESPONSE

Section 5 1 1 (Airborne) was expanded to include CAQCC regulations that serve as applicable requirements. Cleanup target levels will be dictated by Tier II action level criteria defined in the RFCA. Section 5 1 2 was deleted from the document because radiological standards are designed for worker protection and as such are not ARARs.

### 20 General Comment

*The SAP and Remediation Plan for IHSS 148 and UBC 123 should be included in the Section 3 2 1 list of documents to be prepared. These documents do not go out for public comment, but do require Division approval.*

## RESPONSE

The SAP was added to the list in Section 3 1 1. Remediation of the soil and pipelines will be added to the RCRA Unit 40 Closure Plan and the SAP during the 2nd revision, but not in a separate document. Also, the following sentence was added to the second

paragraph of Section 3 1 1 “Also, the SAP, Remediation Plan and RCRA Unit 40 Closure Plan will be submitted to CDPHE for review and approval prior to initiation of work governed by those documents ”

21 *General Comment*

*The anticipated evaluation of the Environmental Checklist needs to be included in this PAM*

RESPONSE

The Environmental Checklist will not be included in the document. However, it will be available as a guidance document in the Project Files. The Environmental Checklist is attached to this responsiveness summary.

22 *General Comment*

*The schedule allows for completion of the project within 6 months from the start of building demolition, but shows a 1-1/2 month overlap of building demolition with IHSS remediation. How will both these activities happen simultaneously?*

RESPONSE

Initial soil sampling will begin outside of the building before demolition. Remaining samples will be collected following demolition.

23 *General Comment*

*The PAM does not identify tank systems and/or valve vaults related to the Original Process Waste Lines. What tank systems and/or valve vaults are connected to the Building 123 process waste system and are they to be decommissioned as part of this PAM? Tank 428 for instance, is designed to collect waste generated from Building 123 and should be decommissioned as part of this PAM.*

RESPONSE

Section 2 3 2 (IHSS 121), last paragraph, was revised to include the following statement: “Currently, all process waste throughout Building 123 is collected in floor sumps. Each sump collects and temporarily stores liquid waste which is then pumped through overhead lines into a main floor sump in Room 158. The waste is then gravity-fed through P-1 to Valve Vault 18, then to Tank 428 at Building 441, and finally to Building 374 for treatment. Tank 428 will not be removed as part of this action, as it is needed for other RFETS waste systems.”

24 *General Comment*

*The revised PAM should include a detailed project schedule in order to effectively track the progress of activities for this project. This schedule should identify submittals for the SAP, the remediation plan and all other significant documents to be generated.*

RESPONSE

The schedule is included as Attachment C.

**Originator: Ed Smith, CDPHE**

**1 Section 5 0, ARARs**

*This section should clearly specify whether the identified regulatory requirements are applicable or whether they are merely relevant and appropriate. This is an important distinction because a requirement determined to be applicable must be met in its entirety, while a requirement that is relevant and appropriate needs to be met considering site conditions and protection of human health and environment.*

**RESPONSE**

A general listing of ARARs was included in Section 5 0, and a more specific list of ARARs that are associated with the project was included as Attachment B. Both lists distinguish between applicable and relevant and appropriate requirements.

**2 Section 5 1 1**

*An analysis is needed to determine whether the NESHAP standards for asbestos are applicable or whether they are relevant and appropriate.*

**RESPONSE**

An evaluation of requirements associated with asbestos abatement/disposal including whether the requirement is applicable, relevant and appropriate, or To Be Considered was included in the PAM as Attachment B.

**3 General**

*An analysis is required to determine whether TSCA is applicable or relevant and appropriate for disposal of PCB contaminated light ballasts and/or asbestos that may be generated during D&D of Building 123.*

**RESPONSE**

An evaluation of TSCA regulations as ARARs was conducted and included as part of the general D&D ARARs. In addition, text was added under Section 2 4 7 stating the following: "Potential exists for the presence of PCBs in fluorescent light ballasts. Consequently, all light ballasts will be evaluated for PCB contamination and properly segregated after the building has been vacated and lights are no longer required. All light ballasts marked "PCB Free" or "No PCBs" will be managed as non-hazardous solid waste and disposed at a sanitary landfill. Ballasts marked "PCBs" or not marked and not leaking will be packaged for disposal at an TSCA-permitted facility. Leaking PCB light ballasts and unmarked light ballasts will be managed as fully-regulated PCB Articles."

**4 Section 5 2 1**

*This section states that fluorescent lights will be managed as universal waste. However, the definition of universal waste does not include fluorescent lights, at this time.*

**RESPONSE**

The reference to Universal Wastes has been deleted.

5 Section 5 2 1

*This section does not include all of the ARARs associated with RCRA. For example, if batteries will be managed as universal waste then the requirements of 6 CCR 1007-3 Part 279 are applicable requirements. In addition, the land disposal restriction (LDR) from the area of contamination and to any hazardous waste that is excavated from the area of contamination, managed within another unit, and returned to the area of contamination. Finally, the closure requirements of 6 CCR 1007-3 Part 264 are applicable to areas associated with RCRA Unit 40 if hazardous waste was managed in that unit after November 8, 1980. If hazardous waste was not managed after that date, then those requirements may still be relevant and appropriate.*

RESPONSE

A general listing of ARARs was included in Section 5 0, and a more specific list of ARARs that are associated with the project was included as Attachment B.

6 General Comment

*As stated above, the PAM should specify whether the identified requirements are applicable or relevant and appropriate. A requirement cannot be both applicable and relevant and appropriate.*

RESPONSE

A general listing of ARARs was included in Section 5 0, and a more specific list of ARARs that are associated with the project was included as Attachment B. The lists include an evaluation as to whether an ARAR is applicable, relevant and appropriate, or To Be Considered.

7 General Comment

*Section 2 3 4 indicates that sampling has confirmed the presence of asbestos but the associated TSCA requirements for disposal of asbestos waste and the NESHAP standards for asbestos have not been identified as ARARs. Please determine if these requirements should be included as ARARs for this project.*

RESPONSE

A general listing of ARARs was included in Section 5 0, and a more specific list of ARARs that are associated with the project was included as Attachment B. The lists include an evaluation of requirements associated with asbestos management/disposal including whether an ARAR is applicable, relevant and appropriate, or To Be Considered.

8 Section 5 0

*This section states that no hazardous waste generation is anticipated from demolition. However, Section 2 3 3 states that lead based paint will be collected, characterized and managed in accordance with applicable hazardous waste regulations. This inconsistency should be corrected.*

RESPONSE

Could not locate statement that "no hazardous waste generation is anticipated from demolition." Hazardous wastes will be managed according to Section 5 2 1, RCRA.

9 Section 5 0, 4th Paragraph

*The last sentence indicates that a temporary unit, specifically a 90-day accumulation area, may be established under 6 CCR 1007-3, 264 553. The text is misleading in this respect. A temporary unit may be established pursuant to the referenced regulation and waste may be managed in such unit for up to a one year period. On the other hand, a 90-day accumulation area may be established pursuant to 6 CCR 1007-3, Section 264 553 or in a 90-day accumulation area established pursuant to 6 CCR 1007-3, Section 262 34, whichever is most appropriate.*

RESPONSE

Attachment B (Specific ARAR list) lists 264 Subpart S (Corrective Action ) which includes Temporary Units, and 262 34(a) which includes 90-day units. ARARs will be used according to unit type. The accumulation time limit associated with these unit is administrative in nature and is not applicable.

10 Table 5-1

*Asbestos requirements that are determined to be ARARs, if any, should be added to this table. Also, 6 CCR 1007-3, Part 262 and 268 should be added for waste generation and LDR treatment standards, as discussed above. Finally, DOE Order 5820 2A should be added as a TBC for radiation protection.*

RESPONSE

The applicable ARARs have been included under a general listing in Table 5-1 and are specifically listed in Attachment A.

**Originator: James Hindman, CDPHE**

1 Section 2 3 3, Last Paragraph

*Light ballasts and fluorescent lights are not regulated as universal waste streams in Colorado.*

RESPONSE

All references to Universal Waste Streams have been removed from the document.

2 Section 7 0, Documentation

*Sampling and analysis data must be included in the completion report.*

RESPONSE

Sample and analysis data will be included in a Sample and Analysis report to be prepared following receipt of sample analysis results.

3 Figure 6-1, Schedule Layout

*The schedule shows that the Reconnaissance Level Characterization Report (RLCR) was to be submitted at the end of April, prior to submitting the PAM to CDPHE. Do we have a copy of the RLCR? If not, we should request it.*

RESPONSE

A copy of the RCLR was submitted to CDPHE for review.

**Originator: CDPHE (ARAR Comments, Attachment B)**

*1 Page 3*

*What about 40 CFR 61 152 for disposal of asbestos-containing waste from demolition and renovation operations?*

**RESPONSE**

40 CFR §61 152 is only applicable to inactive waste disposal sites for asbestos mulls and manufacturing and fabricating operations. Offsite disposal of friable and non-friable asbestos wastes is fully regulated under the Colorado Solid Waste Management Requirements found at 6 CCR 1007-2, Part 1, (B), Section 5. This requirement will be identified as applicable to offsite asbestos disposal.

*2 Page 4*

*Reference should be to State HW regs 6 CCR, 1007-3*

**RESPONSE**

State requirements are only identified as ARAR when they are duly promulgated, of general applicability, and more stringent than the federal requirements. See SARA 121(d)(2)(A)(ii), the National Contingency Plan at 40 CFR §300.400(g)(4), and page 11 of the CERCLA Compliance With Other Laws Manual, August 8, 1988, OSWER Directive 9234.1-01. A footnote was added to the table which states "Federal Requirements are identified except where State requirements are more stringent."

*3 Page 4*

*If HW will be generated and managed in a 90-day area then the following are applicable 265, subpart I, labeling, 265, subpart C & D and 265.16 (training)*

**RESPONSE**

As noted below, all remediation waste generated during the project will be handled in Temporary Units, with 40 CFR §264.553 as the applicable ARAR.

*4 Page 4*

*If HW will be generated + managed in a SAA then 262.34(c) applies which includes the above*

**RESPONSE**

As noted below, all remediation waste generated during the project will be handled in Temporary Units, with 40 CFR §264.553 as the applicable ARAR.

*5 Page 5*

*How is this applicable? (reference to 40 CFR Subpart S, Corrective Action for Solid Waste Management Units)*

**RESPONSE**

40 CFR §264.553, Temporary Units, is applicable to "temporary tanks and container storage areas used for treatment or storage of hazardous remediation wastes."

6 Page 6

*Yes (applicable) a plan is not required, but personnel must have RCRA training if HW is generated (reference to 265 16 Personnel Training)*

RESPONSE

Just as 29 CFR §1910 120 is not ARAR because of §300 430(b)(6) and the mandates at 40 CFR §300 150 and 40 CFR §311, the RCRA training requirements are not ARAR in that they do not provide additional substantive criteria not already embodied in 29 CFR §1910 120. However, text was added to Section 5 2 1 (RCRA) to define training requirements. Also, the entry in the "Applicable" column in the ARAR table (Attachment B) was changed from "No" to "Yes".

7 Page 6

*Yes (applicable) if such waste will be managed (reference to 265 17, General requirements for Ignitable, Reactive, or Incompatible Wastes)*

RESPONSE

Elements of these requirements may be relevant and appropriate by operation of §264 553(a) that states "design, operating, or closure requirements may be replaced by alternative requirements which are protective of human health and the environment" (emphasis added). Section 5 2 1 (RCRA) was expanded to define criteria for temporary units including methods for storage and segregation. Also, the entry in the "Applicable" column in the ARAR table (Attachment B) was changed from "No" to "Yes".

8 Page 7

*Most likely not applicable since mixed waste is excluded and otherwise all that is required is mgmt of waste in DOT closed containers*

RESPONSE

The word "deferred" in the "Applicable" column of Page A-7 was changed to "NA".

9 Page 8

*Should refer to 6 CCR 1007-3 Part 267*

RESPONSE

State requirements are only identified as ARAR when they are duly promulgated, of general applicability, and more stringent than the federal requirements. See SARA 121(d)(2)(A)(ii), the National Contingency Plan at 40 CFR §300 400(g)(4), and page 1 1 of the CERCLA Compliance With Other Laws Manual, August 8, 1988, OSWER Directive 9234 1-01. A footnote was added to the table which states "Federal Requirements are identified except where State requirements are more stringent."

10 Page 8

*6 CCR 1007-3, Part 100 (as substitute for 40 CFR Part 270)*

RESPONSE

State requirements are only identified as ARAR when they are duly promulgated, of general applicability, and more stringent than the federal requirements. See SARA



121(d)(2)(A)(ii), the National Contingency Plan at 40 CFR §300.400(g)(4), and page 11 of the CERCLA Compliance With Other Laws Manual, August 8, 1988, OSWER Directive 9234.1-01. A footnote was added to the table which states "Federal Requirements are identified except where State requirements are more stringent."

*11 Page 9*

*Unless this is guidance the regulation would be applicable if such waste will be encountered (reference to Non-leaking Ballast Marked "Contains PCBs")*

**RESPONSE**

The entry in the "Relevant and Appropriate" column for "Non-Leaking Ballast Marked 'Contains PCBs'" was changed to state the following "Yes, to final offsite management of this waste stream"



Rocky Mountain  
Remediation Services, L.L.C.  
*protecting the environment*

Rocky Flats Environmental Technology Site  
P.O. Box 464  
Golden, Colorado 80402  
Phone (303) 966-7000  
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April 8, 1997

Steve Nesta  
CP&I, T130C  
Kaiser-Hill L.L.C.  
Rocky Flats Environmental Technology Site

ENVIRONMENTAL CHECKLIST - DECOMMISSIONING OF BUILDING 123  
- CLG-075-97

PURPOSE

The purpose of this letter is to submit the attached Environmental Checklist (EC) for the Building 123 Decommissioning

DISCUSSION

The attached EC is provided for your evaluations for the Decommissioning of Building 123. Your review comments and actions will be incorporated into the Project Plans and documentation.

RESPONSE REQUIREMENTS

Please review and provide comments to the Project Manager, Doug Steffen, T130F, X2164, and copy Gary Guinn, also in T130F, X8043 at your earliest convenience.

C. L. "Vem" Guthrie, Acting Vice President  
Engineering, Construction, and Decommissioning

GDG slc

Attachment  
As Stated

cc  
Kent Dorr - T130F  
Mike Jennings - B130

**ENVIRONMENTAL CHECKLIST**  
**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE**

Form Revised 7/19/96

1. Project/Activity Name. Decommissioning of Building 123
2. Date: 3/26/97
- 3 Charge Number: NG887030
4. Work Package Number. NG887030
5. Project Manager Doug Steffen, RMRS
6. RFFO Project Sponsor William Fitch
- 7 K-H Line Manager Kent Dorr
- 8 ETA Preparer (Bldg ,Ext) Gary Guinn, T130F, X8043
- 9 Project Description

The scope of work includes all activities required for the safe and compliant decommissioning of Building 123 The scope includes characterization, asbestos abatement, decontamination, dismantlement, removal of equipment and furniture, removal of facility power and safety systems, and demolition to the facility slab No excavation is expected As part of characterization, evaluations will be completed to assess any potential impact on the public, site personnel, or the environment

This project will be completed utilizing a Proposed Action Memorandum (PAM) as specified in the Rocky Flats Cleanup Agreement (RFCA) for Decommissioning under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Removal Actions. The PAM actions will be implement used the Site's Integrated Work Control Plan (IWCP)

Asbestos abatement will be conducted by a state approved subcontractor This abatement and the equipment/furniture removal will be completed prior to the scope identified in the PAM but will utilize site procedures and infrastructure

		<u>YES</u>	<u>NO</u>	<u>NOTES</u>
10	Will the project require or potentially require permit application(s) or permit modification(s) under the			
A	Clean Air Act? (e g , APENs, Rad-NESHAP, fugitive dust, etc )	<u>X</u>	<u>      </u>	Fugitive Dust
B	Clean Water Act? (e g , discharges, chemicals, etc )	<u>      </u>	<u>X</u>	
11	Resource Conservation and Recovery Act (RCRA)			
A	Does the project generate, treat, store, or dispose of hazardous, radioactive, or mixed waste?	<u>X</u>	<u>      </u>	
B	Does the project involve a removal?	<u>      </u>	<u>X</u>	
C	Does the project include RCRA closure?	<u>X</u>	<u>      </u>	
	-partial?	<u>X</u>	<u>      </u>	
	-full?	<u>      </u>	<u>X</u>	
D	Does the project include excavation or capping to meet RCRA requirements?	<u>      </u>	<u>X</u>	
E	Will cost and duration stay within \$5 million and 60 months? (Explain in Section 9, Project Description)	<u>      </u>	<u>      </u>	N/A
F	Will a RCRA permit or permit modification be required?	<u>      </u>	<u>X</u>	
12	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)			
A	Is the project part of an activity required in the Rocky Flats Cleanup Agreement?	<u>X</u>	<u>      </u>	
B	If the answer to A is YES, is the project described in a document that has been approved by EPA or CDPHE, or will be approved by at least one of those agencies before project work begins?	<u>X</u>	<u>      </u>	PAM IN DRAFT
C	If the answers to both A and B are YES, has that document been reviewed by the National Environmental Policy Act (NEPA) Group for inclusion of NEPA values?	<u>      </u>	<u>X</u>	NEEDED *
13	Will the project create TSCA-regulated waste (asbestos & PCBs)?	<u>X</u>	<u>      </u>	ASBESTOS + POTENTIAL FOR PC
14	Have all steps been taken to ensure compliance with procedures 1-G98-EPR-END 04, Migratory Bird Evaluation and Protection, and 1-D06-EPR-END 03, Identification and Protection of Threatened, Endangered, and Special-Concern Species?	<u>      </u>	<u>X</u>	EVALUATION WILL BE CONDUCTED
15	Will the project be in or near an Individual Hazardous Substance Site (IHSS)?	<u>X</u>	<u>      </u>	YES, 12/14/8

		<u>YES</u>	<u>NO</u>	NOTES
16	Will this project construct or require a new or expanded waste disposal, recovery, storage, or treatment facility?	<u>          </u>	<u>  X  </u>	
17	Is the project part of an agreement between DOE and another federal or state agency? (Specify and explain any schedule urgency and deadlines in Section 11, Project Description )	<u>          </u>	<u>  X  </u>	
18	Is the project			
	A A new process, building, etc ?	<u>          </u>	<u>  X  </u>	
	B A modification to an existing process, building, etc ?	<u>          </u>	<u>  X  </u>	
	C An installation of capital equipment	<u>          </u>	<u>  X  </u>	
19	Will the project be located in, or adversely affect designated			
	A Wetlands? (i e , dredge, fill operation)	<u>          </u>	<u>  X  </u>	
	B Natural areas?	<u>          </u>	<u>  X  </u>	
	C Prime agricultural land?	<u>          </u>	<u>  X  </u>	
	D Special water sources?	<u>          </u>	<u>  X  </u>	
	E Historical, archaeological, or architectural sites or buildings? (NHPA, HUD)	<u>          </u>	<u>  X  </u>	
	F Impact surfacewater or groundwater	<u>          </u>	<u>  X  </u>	HUD EVAL IS BE CONDUCTED
20	Will the project result in, or have the potential to result in, long term changes to the environment?	<u>          </u>	<u>  X  </u>	
21	Will the project result in changes or disturbances of the following existing conditions			
	A Noise levels?	<u>          </u>	<u>  X  </u>	
	B Solid wastes?	<u>          </u>	<u>  X  </u>	
	C Radioactive wastes? (including disturbed or excavated contaminated soil)	<u>          </u>	<u>  X  </u>	
	D Hazardous waste?	<u>          </u>	<u>  X  </u>	
22	Will the project have effects on the environment which are likely to be publicly controversial?	<u>          </u>	<u>  X  </u>	
23	Will the project establish a precedent for future projects that will have significant effects, or represent a "decision in principle" about a future consideration?	<u>          </u>	<u>  X  </u>	
24	Is the project related to other projects or to a larger program?	<u>  X  </u>	<u>          </u>	TEN YEAR PLAN
25	Have pollution prevention measures been considered? (Discuss in Section 11, Project Description )	<u>  X  </u>	<u>          </u>	

26. Does/Will the project present a radiation health and safety concern during construction or operation? (Price-Anderson Act)

YES

\_\_\_\_\_

NO

\_\_\_\_\_X\_\_\_\_\_

NOTES

AREAS WILL  
BE DECONTAMINATED  
PRIOR TO DEMOLITION

NOTES:

## Ductwork Washdown/Dismantlement Guidelines

### Building 123 Perchloric acid hoods

- 1) Laboratory personnel were interviewed regarding this process. The individual interviewed has 23 years experience as a chemist in the 123 complex and has intimate knowledge of the location of use and quantities of perchloric acid used in the past years.
- 2) The hoods in rooms 112, 105, 103, and 157 were identified as locations of use in the historical past. Seven systems are known to have had  $\text{HClO}_4$  digestions done in them over the course of the years.
- 3) The hoods and associated ductwork will have to be numbered to ensure workers are cleaning/dismantling one system at a time.
- 4) The washdown systems of each of the hood/ductwork systems need to be verified as functioning. This will be done by pressurizing the system and listening to the water spraying from each of the nozzle locations.
- 5) If any non functional spray nozzles or lines are located during the inspection, they will be repaired or replaced as needed to ensure wetting of the entire duct interior.
- 6) At this time, a thorough washdown of the ductwork interior should be done. All washdowns should be run for a minimum of five minutes or until the rinsate from the ductwork runs clear for one minute.
- 7) While the duct interior is still wet, carefully open an access panel on the duct at the highest point on the system. Using the "water pick" (a  $\frac{3}{4}$  inch garden hose with a ball valve necked down to a  $\frac{3}{8}$  inch copper line) deluge the interior surfaces as far as possible, washing in both directions toward the process waste system.
- 8) Dismantle a manageable section of ductwork and test interior surfaces for residual perchlorates with a solution of Methylene Blue. **Note well: All interior surfaces must be thoroughly wetted prior to working on the ductwork system.**
- 9) Reclean duct if violet precipitate is noticed, paying particular attention to elbows, seams, welds, and any other interior irregularity.
- 10) When ductwork sections are verified as free of residual perchlorates, segregate the stainless steel as directed by the Radiological Control Technician and the Environmental Coordinator.

## **Proposed Washdown/Dimantlement**

### **Building 123 Perchloric acid hoods.**

#### Summary

- 1) Interview Laboratory Personnel with intimate process knowledge
- 2) Identify number and location of all hoods with historical use of  $\text{HClO}_4$
- 3) Walkdown hoods and ductwork
- 4) Number hoods and associated ductwork
- 5) Verify operational state of duct washdown systems
- 6) Repair sub standard washdown systems when identified
- 7) Conduct a thorough washdown of duct interiors (5 minutes or until rinsate runs clear) one hood system at a time
- 8) Open access panels on the ductwork accessed from roofs
- 9) Using a "water pick", thoroughly rinse the entire duct interior into the process waste system
- 10) Dismantle ductwork into easily managed sections
- 11) Using Methylene Blue, paint or spray a light coat on the interior of the still wet ductwork, and carefully examine for the violet precipitate indicating residual perchlorates
- 12) If precipitate is noted, clean interior again
- 13) If/when no precipitate is noted, segregate solid duct material per Environmental Coordinator and RCT direction



**PPE Requirements (in addition to RCT requirements)**

Safety Glasses with side shields

Leather or Kevlar gloves

Chemical goggles

Face shield

Safety toed footwear

Hard hat

Impermeable apron or acid suit depending on the potential for splash

Fall Protection harness

**Other Materials**

Bucket truck

Ladders

Saws-All or Nibbler

Drill motor

hole saw blades

GFCI electrical power

water